6.2D Transmitter power for UL MIMO

6.2D.1 UE maximum output power for UL MIMO

Editor's Note:

- No test points are defined for 2-layer UL MIMO since there is no configuration satisfying MPR=0dB requirements in RAN4. Testing with 1.5dB MPR as recommended by RAN4 has been covered in 6.2D.2.

- Implementation to verify '*If UE is configured for transmission on single-antenna port, the requirements in clause 6.2.1 apply*' is still under discussion.

6.2D.1.1 Test purpose

To verify that the error of the UE maximum output power for UL MIMO does not exceed the range prescribed by the specified nominal maximum output power and tolerance.

An excess maximum output power has the possibility to interfere to other channels or other systems. A small maximum output power decreases the coverage area.

6.2D.1.2 Test applicability

This test case applies to all types of NR UE release 15 and forward that support UL MIMO.

6.2D.1.3 Minimum conformance requirements

For UE with two transmit antenna connectors in closed-loop spatial multiplexing scheme, the maximum output power for any transmission bandwidth within the channel bandwidth is specified in Table 6.2D.1.3-1. The requirements shall be met with the UL MIMO configurations specified in Table 6.2D.1.3-2. For UE supporting UL MIMO, the maximum output power is defined as the sum of the maximum output power from both UE antenna connectors. The period of measurement shall be at least one sub frame (1ms).

The requirements shall be met with the UL MIMO configurations of using 2-layer UL MIMO transmission with codebook of $\frac{1}{\sqrt{2}}\begin{bmatrix}1 & 0\\ 0 & 1\end{bmatrix}$. DCI Format for UE configured in PUSCH transmission mode for uplink single-user MIMO shall be used.

Table 6.2D.1.3-1: UE Power Class for UL MIMO in closed loop spatial multiplexing scheme

NR band	Class 1 (dBm)	Tolerance (dB)	Class 1.5 (dBm)	Tolerance (dB)	Class 2 (dBm)	Tolerance (dB)	Class 3 (dBm)	Tolerance (dB)	Class 4 (dBm)	Tolerance (dB)
n1							23	+2/-3		
n2							23	+2/-3[1]		
n3							23	+2/-3[1]		
n7							23	+2/-3[1]		
n25							23	+2/-3[1]		
n30							23	+2/-3		
n34					26	+2/-3	23	+2/-3		
n38							23	+2/-3		
n39					26	+2/-3	23	+2/-3		
n40							23	+2/-3		
n41			29	+2/-3[1]	26	+2/-3[1]	23	+2/-3[1]		
n48							23	+2/-3		
n66							23	+2/-3		
n70							23	+2/-3		
n71							23	+2/-3		
n77			29	+2/-3	26	+2/-3	23	+2/-3		
n78			29	+2/-3	26	+2/-3	23	+2/-3		
n79			29	+2/-3	26	+2/-3	23	+2/-3		
n97							23	+2/-3		

NOTE 1: [1] refers to the transmission bandwidths confined within F_{UL_low} and F_{UL_low} + 4 MHz or F_{UL_high} – 4 MHz and F_{UL_high}, the maximum output power requirement is relaxed by reducing the lower tolerance limit by 1.5 dB.
NOTE 2: Power class 3 is the default power class unless otherwise stated.

Table 6.2D.1.3-2: UL MIMO configuration in closed-loop spatial multiplexing scheme

Transmission scheme	DCI format	Number of layers	TPMI index
Codebook based uplink	DCI format 0_1	2	0
NOTE 1: The UE is configured with one SRS resource with the parameter *nrofSRS-Ports* set to 2.			

For UEs supporting uplink full power transmission (ULFPTx) for UL MIMO, the maximum output power requirements specified in Table 6.2D.1.3-1 shall be met with the PUSCH configurations specified in Table 6.2D.1.3-3, based upon UE's support of uplink full power transmission mode.

Table 6.2D.1.3-3: PUSCH Configuration for uplink full power transmission (ULFPTx)

ULFPTx Mode	Transmission scheme	DCI format	Modulation	Number of layers	Number of Tx Port	TPMI index
Mode-1	Codebook based uplink	DCI format 0_1	DFT-s-OFDM, CP-OFDM NOTE3	1	2	2
Mode-2	Codebook based uplink	DCI format 0_1	DFT-s-OFDM, CP-OFDM	1	2	0 or 1 NOTE2
Mode-full power	Codebook based uplink	DCI format 0_1	DFT-s-OFDM, CP-OFDM	1	2	0,1

NOTE 1: The UE is configured with one SRS resource with the parameter *nrofSRS-Ports* set to 2.
NOTE 2: TPMI index selected shall be based upon the full power TPMI reported by the UE [9].
NOTE 3: For PUSCH configured with ULFPTx Mode set to Mode-1, all the transmitter requirement for CP-OFDM based modulation is not needed to be verified if the requirement for UL MIMO has been validated.

If the UE is scheduled for single antenna-port PUSCH transmission by DCI format 0_0 or by DCI format 0_1 for single antenna port codebook based transmission, the requirements in clause 6.2 apply for at least one antenna connector for the power class as indicated by the *ue-PowerClass* field in capability signalling with the following exception: for UEs indicating *txDiversity-r16*, the requirements in clause 6.2G for the power class indicated by the *ue-PowerClass*.

A UE indicating the feature *ul-FullPwrMode-r16* or *ul-FullPwrMode2-TPMIGroup-r16* for a band shall meet the requirement in clause 6.2 for at least one antenna connector when scheduled for single antenna-port transmission by DCI format 0_0 or by DCI format 0_1 for codebook-based transmission on a single antenna port.

The normative reference for this requirement is TS 38.101-1 [2] clause 6.2D.1.

6.2D.1.4 Test description

6.2D.1.4.1 Initial conditions

Initial conditions are a set of test configurations the UE needs to be tested in and the steps for the SS to take with the UE to reach the correct measurement state.

The initial test configurations consist of environmental conditions, test frequencies, test channel bandwidths and sub-carrier spacing based on NR operating bands specified in table 5.3.5-1. All of these configurations shall be tested with applicable test parameters for each combination of test channel bandwidth and sub-carrier spacing, and are shown in Table 6.2D.1.4.1-1 and Table 6.2D.1.4.1-2. The details of the uplink reference measurement channels (RMCs) are specified in Annexes A.2. Configurations of PDSCH and PDCCH before measurement are specified in Annex C.2.

Table 6.2D.1.4.1-1: Test Configuration Table for 2-layer UL MIMO

NOTE: No test points are defined since there is no configuration satisfying MPR=0dB requirements in RAN4.

Table 6.2D.1.4.1-2: Test Configuration Table for uplink full power transmission (ULFPTx)

Initial Conditions			
Test Environment as specified in TS 38.508-1 [5] subclause 4.1		Normal, TL/VL, TL/VH, TH/VL, TH/VH	
Test Frequencies as specified in TS 38.508-1 [5] subclause 4.3.1		Low range, Mid range, High range	
Test Channel Bandwidths as specified in TS 38.508-1 [5] subclause 4.3.1		Lowest, Mid, Highest	
Test SCS as specified in Table 5.3.5-1		Lowest, Highest	
Test Parameters			
Test ID	**Downlink Configuration**	**Uplink Configuration**	
	N/A for maximum output power test case	**Modulation (NOTE 2)**	**RB allocation (NOTE 1)**
1		DFT-s-OFDM PI/2 BPSK	Inner Full
2		DFT-s-OFDM PI/2 BPSK	Inner 1RB Left
3		DFT-s-OFDM PI/2 BPSK	Inner 1RB Right
4		DFT-s-OFDM QPSK	Inner Full
5		DFT-s-OFDM QPSK	Inner 1RB Left
6		DFT-s-OFDM QPSK	Inner 1RB Right
NOTE 1: The specific configuration of each RB allocation is defined in Table 6.1-1. NOTE 2: DFT-s-OFDM PI/2 BPSK test applies only for UEs which supports half Pi BPSK in FR1.			

1. Connect the SS to the UE antenna connectors as shown in TS 38.508-1 [5] Annex A, Figure A.3.1.1.2 for TE diagram and section A.3.2 for UE diagram.
2. The parameter settings for the cell are set up according to TS 38.508-1 [5] subclause 4.4.3.
3. Downlink signals are initially set up according to Annex C.0, C.1, C.2, and uplink signals according to Annex G.0, G.1, G.2, G.3.0.
4. The UL Reference Measurement Channel is set according to Table 6.2D.1.4.1-1 and Table 6.2D.1.4.1-2.
5. Propagation conditions are set according to Annex B.0.
6. Ensure the UE is in state RRC_CONNECTED with generic procedure parameters Connectivity *NR*, Connected without release *On*, Test Mode *On* and Test Loop Function *On* according to TS 38.508-1 [5] clause 4.5. Message contents are defined in clause 6.2D.1.4.3.

6.2D.1.4.2 Test procedure

1. SS sends uplink scheduling information for each UL HARQ process via PDCCH DCI format 0_1 for C_RNTI to schedule the UL RMC according to Table 6.2D.1.4.1-1. Since the UE has no payload and no loopback data to send the UE sends uplink MAC padding bits on the UL RMC. The PDCCH DCI format 0_1 is specified with the condition 2TX_UL_MIMO in 38.508-1 [5] subclause 4.3.6.1.1.2.

2. Send continuously uplink power control "up" commands in every uplink scheduling information to the UE; allow at least 200ms starting from the first TPC command in this step for the UE to reach P_{UMAX} level.

3. Measure the sum of the mean power of the UE at each transmit antenna connector in the channel bandwidth of the radio access mode. The period of measurement shall be at least the continuous duration of 1ms over all active uplink slots and in the uplink symbols. For TDD slots only slots consisting of only UL symbols are under.

4. If UE supports ULFPTx, repeat test steps 1~3 with UL RMC according to Table 6.2D.1.4.1-2. The PDCCH DCI format 0_1 is specified with the condition ULFPTx_Mode1, ULFPTx_Mode2 or ULFPTx_ModeFull in 38.508-1 [5] subclause 4.3.6.1.1.2 depending on UE reported capability. Message contents are according to TS 38.508-1 [5] clause 4.6.3 Table 4.6.3-118 with condition TRANSFORM_PRECODER_ENABLED.

6.2D.1.4.3 Message contents

Message contents are according to TS 38.508-1 [5] subclause 4.6 and 5.4 ensuring Table 4.6.3-182 with the condition 2TX_UL_MIMO.

6.2D.1.5 Test requirement

The maximum output power, derived in step 3 or step 4 shall be within the range prescribed by the nominal maximum output power and tolerance in Table 6.2D.1.5-1.

Table 6.2D.1.5-1: UE Power Class

NR band	Class 1 (dBm)	Tolerance (dB)	Class 1.5 (dBm)	Tolerance (dB)	Class 2 (dBm)	Tolerance (dB)	Class 3 (dBm)	Tolerance (dB)	Class 4 (dBm)	Tolerance (dB)
n1							23	+2+TT/-3-TT		
n2							23	+2+TT/-3[1]-TT		
n3							23	+2+TT/-3[1]-TT		
n7							23	+2+TT/-3[1]-TT		
n25							23	+2+TT/-3[1]-TT		
n30							23	+2+TT/-3-TT		
n34					26	+2+TT/-3-TT	23	+2+TT/-3-TT		
n38							23	+2+TT/-3-TT		
n39					26	+2+TT/-3-TT	23	+2+TT/-3-TT		
n40							23	+2+TT/-3-TT		
n41			29	_+2+TT/-3[1]-TT	26	+2+TT/-3[1]-TT	23	+2+TT/-3[1]-TT		
n48							23	+2+TT/-3-TT		
n66							23	+2+TT/-3-TT		
n70							23	+2+TT/-3-TT		
n71							23	+2+TT/-3-TT		
n77			29	+2+TT/-3-TT	26	+2+TT/-3-TT	23	+2+TT/-3-TT		
n78			29	+2+TT/-3-TT	26	+2+TT/-3-TT	23	+2+TT/-3-TT		
n79			29	+2+TT/-3-TT	26	+2+TT/-3-TT	23	+2+TT/-3-TT		
n97							23	+2+TT/-3-TT		

NOTE 1: [1] refers to the transmission bandwidths confined within F_{UL_low} and F_{UL_low} + 4 MHz or F_{UL_high} – 4 MHz and F_{UL_high}, the maximum output power requirement is relaxed by reducing the lower tolerance limit by 1.5 dB
NOTE 2: TT for each frequency and channel bandwidth is specified in Table 6.2D.1.5-2

Table 6.2D.1.5-2: Test Tolerance (UE maximum output power)

	f ≤ 3.0GHz	3.0GHz < f ≤ 6.0GHz
BW ≤ 40MHz	0.7 dB	1.0 dB
40MHz < BW ≤ 100MHz	1.0 dB	1.0 dB

For the UE which supports inter-band NR CA configuration, inter-band NR-DC configuration, SUL configuration or inter-band EN-DC configuration, $\Delta T_{IB,c}$ as specified in 6.2A.4.0.2 for NR CA, 6.2B.4.0.2 for NR-DC, clause 6.2C.2 for SUL, or TS 38.521-3 [14] clause 6.2B.4.2 for EN-DC applies. Unless otherwise stated, $\Delta T_{IB,c}$ is set to zero. In case the UE supports more than one of band combinations for CA, NR-DC, SUL or EN-DC, and an operating band belongs to more than one band combinations then

a) When the operating band frequency range is ≤ 1 GHz, the applicable additional $\Delta T_{IB,c}$ shall be the average value for all band combinations defined in clause 6.2A.4.0.2, 6.2B.4.0.2, 6.2C.2 in this specification and 6.2B.4.2 in TS 38.521-3 [14], truncated to one decimal place that apply for that operating band among the supported band combinations. In case there is a harmonic relation between low band UL and high band DL, then the maximum $\Delta T_{IB,c}$ among the different supported band combinations involving such band shall be applied.

b) When the operating band frequency range is > 1 GHz, the applicable additional $\Delta T_{IB,c}$ shall be the maximum value for all band combinations defined in clause 6.2A.4.0.2, 6.2B.4.0.2, 6.2C.2 in this specification and 6.2B.4.2 in TS 38.521-3 [14] for the applicable operating bands.

6.2D.2 UE maximum output power reduction for UL MIMO

Editor's Note:

- Requirment of PC2 is pending in RAN4. MPR for UL MIMO for PC2 is incomplete and cannot be tested.

- The test case is not completed for Rel-16 ULFPTx UE due to the following aspects are not yet determined:

  - Test requirements for PC 2 are missing

6.2D.2.1 Test purpose

To verify that the power reduction of UE due to higher order modulations and transmit bandwidth configuration does not exceed the specified maximum power reduction.

6.2D.2.2 Test applicability

This test case applies to all types of NR UE release 15 and forward that support UL MIMO.

NOTE: Test execution is not necessary if TS 38.521-1 6.5D.2.4.1 is executed.

6.2D.2.3 Minimum conformance requirements

For UE with two transmit antenna connectors in closed-loop spatial multiplexing scheme, the allowed Maximum Power Reduction (MPR) for the maximum output power in Table 6.2D.1.3-1 is specified in Table 6.2.2.3-1 for PC3, Table 6.2D.2.3-1 for 2Tx PC2, Table 6.2D.2.3-2 and Table 6.2D.2.3-3 for PC1.5 respectively. For UE power class 1.5, the allowed maximum power reduction (MPR) defined in Table 6.2D.2.3-3 is in accordance with the indicated *modifiedMPR-Behavior* specified in Table L.1-1 for channel bandwidths ≤ 100 MHz. The requirements shall be met with UL MIMO configurations defined in Table 6.2D.1.3-2. For UE supporting UL MIMO, the maximum output power is defined as the sum of the maximum output power from both antenna connectors.

For UE support uplink full power transmission (ULFPTx) for UL MIMO except the feature *ul-FullPwrMode-r16* or *ul-FullPwrMode2-TPMIGroup-r16*, the allowed MPR for the maximum output power in Table 6.2D.1.3-1 is specified in Table 6.2.2.3-1 for PC3, Table 6.2D.2.3-1 when *TxD* is indicated and Table 6.2.2.3-2 when *TxD* is not indicated for PC2 , Table 6.2D.2.3-2 and Table 6.2D.2.3-3 for PC1.5 respectively, and the requirements shall be met with the PUSCH configurations specified in Table 6.2D.1.3-3, based upon UE's support of uplink full power transmission mode. A UE indicating the feature *ul-FullPwrMode-r16* or *ul-FullPwrMode2-TPMIGroup-r16* for a band shall meet the maximum output power requirement with MPR according to clause 6.2.2.3.

The same MPR requirements shall be applicable to UE with 1-layer UL MIMO transmission (either with or without ULPFTx) as with the UL MIMO configurations of using 2-layer UL MIMO transmission with codebook of $\frac{1}{\sqrt{2}}\begin{bmatrix}1 & 0\\ 0 & 1\end{bmatrix}$

.

For the UE maximum output power modified by MPR, the power limits specified in subclause 6.2D.4.3 apply.

If UE is scheduled for single antenna-port PUSCH transmission by DCI format 0_0 or by DCI format 0_1 for single antenna port codebook based transmission, the corresponding requirements in clause 6.2D.1.3 apply for the power class as indicated by the *ue-PowerClass* field in capability signaling. A UE indicating the feature *ul-FullPwrMode-r16* or *ul-FullPwrMode2-TPMIGroup-r16* for a band shall meet the requirement in clause 6.2 with MPR according to clause 6.2.2.3 for at least one antenna connector when scheduled for single antenna-port transmission by DCI format 0_0 or by DCI format 0_1 for codebook-based transmission on a single antenna port.

Table 6.2D.2.3-1: Maximum power reduction (MPR) for power class 2 with dual Tx

Modulation		MPR (dB)		
		Edge RB allocations	Outer RB allocations	Inner RB allocations
DFT-s-OFDM	Pi/2 BPSK	≤ 3.5	≤ 1	0
	QPSK	≤ 3.5	≤ 2	0.5
	16 QAM	≤ 3.5	≤ 2.5	≤ 1.5

	64 QAM	≤ 3.5	≤ 3	
	256 QAM	≤ 5.5		
CP-OFDM	QPSK	≤ 4.0	≤ 3.5	≤ 2
	16 QAM	≤ 4.0	≤ 3.5	≤ 2.5
	64 QAM	≤ 4.5		
	256 QAM	≤ 8.0		

Table 6.2D.2.3-2: Maximum power reduction (MPR) for power class 1.5 with dual Tx

Modulation		MPR (dB)		
		Edge RB allocations	Outer RB allocations	Inner RB allocations
DFT-s-OFDM	Pi/2 BPSK	≤ 6	≤ [2]	≤ 0.5
	QPSK	≤ 6.5	≤ [2.5]	≤ 0.5
	16 QAM	≤ 6.5	≤ [3.5]	≤ 1.5
	64 QAM	≤ 6.5	≤ [4]	≤ 3.5
	256 QAM	≤ 6.5	≤ 6.5	≤ [6.5]
CP-OFDM	QPSK	≤ 6.5	≤ [4.5]	≤ 2
	16 QAM	≤ 6.5	≤ [4.5]	≤ 2.5
	64 QAM	≤ 6.5	≤ [5]	≤ 4.5
	256 QAM	≤ 8.5	≤ 8.5	≤ [8.5]

Table 6.2D.2.3-3: Maximum power reduction (MPR) for power class 1.5 FWA with dual Tx

Modulation		MPR (dB)		
		Edge RB allocations	Outer RB allocations	Inner RB allocations
DFT-s-OFDM	Pi/2 BPSK	≤ 6	≤ 1.5	≤ 0
	QPSK	≤ 6.5	≤ 2	≤ 0
	16 QAM	≤ 6.5	≤ 3	≤ 1
	64 QAM	≤ 6.5	≤ 3.5	≤ 3
	256 QAM	≤ 6.5	≤ 5.5	≤ 5.5
CP-OFDM	QPSK	≤ 6.5	≤ 4	≤ 1.5
	16 QAM	≤ 6.5	≤ 4	≤ 2
	64 QAM	≤ 6.5	≤ 4.5	≤ 4
	256 QAM	≤ 7.5	≤ 7.5	≤ 7.5
NOTE 1: This table is targeted to large FWA form factor with 20 dB or above antenna isolation.				

Inner, outer and edge allocations are as defined in section 6.2.2 except for PC1.5 edge allocations which is for $L_{CRB} \leq 4$ RBs instead of $L_{CRB} \leq 2$ RBs for other power classes. The normative reference for this requirement is TS 38.101-1 [2] clause 6.2D.2.

6.2D.2.4 Test description

6.2D.2.4.1 Initial conditions

Initial conditions are a set of test configurations the UE needs to be tested in and the steps for the SS to take with the UE to reach the correct measurement state.

The initial test configurations consist of environmental conditions, test frequencies, test channel bandwidths and sub-carrier spacing based on NR operating bands specified in table 5.3.5-1. All of these configurations shall be tested with applicable test parameters for each combination of test channel bandwidth and sub-carrier spacing, and are shown in table 6.2D.2.4.1-1, Table 6.2D.2.4.1-1a, Table 6.2D.2.4.1-2, Table 6.2D.2.4.1-2a, Table 6.2D.2.4.1-3 and Table 6.2D.2.4.1-3a. The details of the uplink reference measurement channels (RMCs) are specified in Annexes A.2. Configurations of PDSCH and PDCCH before measurement are specified in Annex C.2.

Table 6.2D.2.4.1-1: Test Configuration Table for Power Class 3

Initial Conditions				
Test Environment as specified in TS 38.508-1 [5] subclause 4.1			Normal, TL/VL, TL/VH, TH/VL, TH/VH	
Test Frequencies as specified in TS 38.508-1 [5] subclause 4.3.1			Low range, High range	
Test Channel Bandwidths as specified in TS 38.508-1 [5] subclause 4.3.1			Lowest, Highest	
Test SCS as specified in Table 5.3.5-1			Lowest and Highest	
Test Parameters for Channel Bandwidths				
Test ID	**Freq**	**Downlink Configuration**	**Uplink Configuration**	
		N/A	**Modulation**	**RB allocation (NOTE 1)**
1	Default		CP-OFDM QPSK	Inner Full
2	Low		CP-OFDM QPSK	Edge_1RB_Left
3	High		CP-OFDM QPSK	Edge_1RB_Right
4	Default		CP-OFDM QPSK	Outer Full
5	Default		CP-OFDM 16 QAM	Inner Full
6	Low		CP-OFDM 16 QAM	Edge_1RB_Left
7	High		CP-OFDM 16 QAM	Edge_1RB_Right
8	Default		CP-OFDM 16 QAM	Outer Full
9	Low		CP-OFDM 64 QAM	Edge_1RB_Left
10	High		CP-OFDM 64 QAM	Edge_1RB_Right
11	Default		CP-OFDM 64 QAM	Outer Full
12	Low		CP-OFDM 256 QAM	Edge_1RB_Left
13	High		CP-OFDM 256 QAM	Edge_1RB_Right
14	Default		CP-OFDM 256 QAM	Outer Full
NOTE 1: The specific configuration of each RB allocation is defined in Table 6.1-1. NOTE 2: CP-OFDM 256 QAM test applies only for UEs which supports 256QAM in FR1.				

Table 6.2D.2.4.1-1a: Test Configuration Table for power class 3 UEs supporting ULFPTx (contiguous allocation)

Initial Conditions	
Test Environment as specified in TS 38.508-1 [5] subclause 4.1	Normal, TL/VL, TL/VH, TH/VL, TH/VH
Test Frequencies as specified in TS 38.508-1 [5] subclause 4.3.1	Low range, High range
Test Channel Bandwidths as specified in TS 38.508-1 [5] subclause 4.3.1	Lowest, Highest
Test SCS as specified in Table 5.3.5-1	Lowest, Highest

Test Parameters for Channel Bandwidths				
Test ID	**Freq**	**Downlink Configuration**	**Uplink Configuration**	
		N/A for Maximum Power Reduction (MPR) test case	**Modulation (NOTE 2)**	**RB allocation (NOTE 1)**
1[4]	Default		DFT-s-OFDM Pi/2 BPSK	Inner Full
2[4]	Low		DFT-s-OFDM Pi/2 BPSK	Edge_1RB_Left
3[4]	High		DFT-s-OFDM Pi/2 BPSK	Edge_1RB_Right
4[4]	Default		DFT-s-OFDM Pi/2 BPSK	Outer Full
5	Default		DFT-s-OFDM QPSK	Inner Full
6	Low		DFT-s-OFDM QPSK	Edge_1RB_Left
7	High		DFT-s-OFDM QPSK	Edge_1RB_Right
8	Default		DFT-s-OFDM QPSK	Outer Full
9	Default		DFT-s-OFDM 16 QAM	Inner Full
10	Low		DFT-s-OFDM 16 QAM	Edge_1RB_Left
11	High		DFT-s-OFDM 16 QAM	Edge_1RB_Right
12	Default		DFT-s-OFDM 16 QAM	Outer Full
13	Low		DFT-s-OFDM 64 QAM	Edge_1RB_Left
14	High		DFT-s-OFDM 64 QAM	Edge_1RB_Right
15	Default		DFT-s-OFDM 64 QAM	Outer Full
16	Low		DFT-s-OFDM 256 QAM	Edge_1RB_Left
17	High		DFT-s-OFDM 256 QAM	Edge_1RB_Right
18	Default		DFT-s-OFDM 256 QAM	Outer Full
19	Default		CP-OFDM QPSK	Inner Full
20	Low		CP-OFDM QPSK	Edge_1RB_Left
21	High		CP-OFDM QPSK	Edge_1RB_Right
22	Default		CP-OFDM QPSK	Outer Full
23	Default		CP-OFDM 16 QAM	Inner Full
24	Low		CP-OFDM 16 QAM	Edge_1RB_Left
25	High		CP-OFDM 16 QAM	Edge_1RB_Right
26	Default		CP-OFDM 16 QAM	Outer Full
27	Low		CP-OFDM 64 QAM	Edge_1RB_Left
28	High		CP-OFDM 64 QAM	Edge_1RB_Right
29	Default		CP-OFDM 64 QAM	Outer Full
30	Low		CP-OFDM 256 QAM	Edge_1RB_Left
31	High		CP-OFDM 256 QAM	Edge_1RB_Right
32	Default		CP-OFDM 256 QAM	Outer Full

NOTE 1: The specific configuration of each RB allocation is defined in Table 6.1-1.
NOTE 2: DFT-s-OFDM Pi/2 BPSK test applies only for UEs which supports half Pi BPSK in FR1.
NOTE 3: Test ID 19 ~ 32 with CP-OFDM modulation are not needed if PDCCH DCI format 0_1 indicates ULFPTx_Mode1.
NOTE 4: UE operating in FDD mode, or in TDD mode in bands other than n40, n41, n77, n78 and n79, or in TDD mode the IE *powerBoostPi2BPSK* is set to 0 for bands n40, n41, n77, n78 and n79.

Table 6.2D.2.4.1-2: Test Configuration Table for Power Class 2

Initial Conditions				
Test Environment as specified in TS 38.508-1 [5] subclause 4.1			Normal, TL/VL, TL/VH, TH/VL, TH/VH	
Test Frequencies as specified in TS 38.508-1 [5] subclause 4.3.1			Low range, High range	
Test Channel Bandwidths as specified in TS 38.508-1 [5] subclause 4.3.1			Lowest, Highest	
Test SCS as specified in Table 5.3.5-1			Lowest and Highest	
Test Parameters for Channel Bandwidths				
Test ID	**Freq**	**Downlink Configuration**	**Uplink Configuration**	
		N/A	**Modulation**	**RB allocation (NOTE 1)**
1	Default		CP-OFDM QPSK	Inner Full
2	Low		CP-OFDM QPSK	Edge_1RB_Left
3	High		CP-OFDM QPSK	Edge_1RB_Right
4	Default		CP-OFDM QPSK	Outer Full
5	Default		CP-OFDM 16 QAM	Inner Full
6	Low		CP-OFDM 16 QAM	Edge_1RB_Left
7	High		CP-OFDM 16 QAM	Edge_1RB_Right
8	Default		CP-OFDM 16 QAM	Outer Full
9	Low		CP-OFDM 64 QAM	Edge_1RB_Left
10	High		CP-OFDM 64 QAM	Edge_1RB_Right
11	Default		CP-OFDM 64 QAM	Outer Full
12	Low		CP-OFDM 256 QAM	Edge_1RB_Left
13	High		CP-OFDM 256 QAM	Edge_1RB_Right
14	Default		CP-OFDM 256 QAM	Outer Full

NOTE 1: The specific configuration of each RB allocation is defined in Table 6.1-1.
NOTE 2: CP-OFDM 256 QAM test applies only for UEs which supports 256QAM in FR1.

Table 6.2D.2.4.1-2a: Test Configuration Table for power class 2 UEs supporting ULFPTx (contiguous allocation)

Initial Conditions	
Test Environment as specified in TS 38.508-1 [5] subclause 4.1	Normal, TL/VL, TL/VH, TH/VL, TH/VH
Test Frequencies as specified in TS 38.508-1 [5] subclause 4.3.1	Low range, High range
Test Channel Bandwidths as specified in TS 38.508-1 [5] subclause 4.3.1	Lowest, Highest
Test SCS as specified in Table 5.3.5-1	Lowest, Highest

Test Parameters for Channel Bandwidths				
Test ID	**Freq**	**Downlink Configuration**	**Uplink Configuration**	
		N/A for Maximum Power Reduction (MPR) test case	**Modulation (NOTE 2)**	**RB allocation (NOTE 1)**
1	Default		DFT-s-OFDM Pi/2 BPSK	Inner Full
2	Low		DFT-s-OFDM Pi/2 BPSK	Edge_1RB_Left
3	High		DFT-s-OFDM Pi/2 BPSK	Edge_1RB_Right
4	Default		DFT-s-OFDM Pi/2 BPSK	Outer Full
5	Default		DFT-s-OFDM QPSK	Inner Full
6	Low		DFT-s-OFDM QPSK	Edge_1RB_Left
7	High		DFT-s-OFDM QPSK	Edge_1RB_Right
8	Default		DFT-s-OFDM QPSK	Outer Full
9	Default		DFT-s-OFDM 16 QAM	Inner Full
10	Low		DFT-s-OFDM 16 QAM	Edge_1RB_Left
11	High		DFT-s-OFDM 16 QAM	Edge_1RB_Right
12	Default		DFT-s-OFDM 16 QAM	Outer Full
13	Low		DFT-s-OFDM 64 QAM	Edge_1RB_Left
14	High		DFT-s-OFDM 64 QAM	Edge_1RB_Right
15	Default		DFT-s-OFDM 64 QAM	Outer Full
16	Low		DFT-s-OFDM 256 QAM	Edge_1RB_Left
17	High		DFT-s-OFDM 256 QAM	Edge_1RB_Right
18	Default		DFT-s-OFDM 256 QAM	Outer Full
19	Default		CP-OFDM QPSK	Inner Full
20	Low		CP-OFDM QPSK	Edge_1RB_Left
21	High		CP-OFDM QPSK	Edge_1RB_Right
22	Default		CP-OFDM QPSK	Outer Full
23	Default		CP-OFDM 16 QAM	Inner Full
24	Low		CP-OFDM 16 QAM	Edge_1RB_Left
25	High		CP-OFDM 16 QAM	Edge_1RB_Right
26	Default		CP-OFDM 16 QAM	Outer Full
27	Low		CP-OFDM 64 QAM	Edge_1RB_Left
28	High		CP-OFDM 64 QAM	Edge_1RB_Right
29	Default		CP-OFDM 64 QAM	Outer Full
30	Low		CP-OFDM 256 QAM	Edge_1RB_Left
31	High		CP-OFDM 256 QAM	Edge_1RB_Right
32	Default		CP-OFDM 256 QAM	Outer Full

NOTE 1: The specific configuration of each RB allocation is defined in Table 6.1-1.
NOTE 2: DFT-s-OFDM Pi/2 BPSK test applies only for UEs which supports half Pi BPSK in FR1.
NOTE 3: Test ID 19 ~ 32 with CP-OFDM modulation are not needed if PDCCH DCI format 0_1 indicates ULFPTx_Mode1.

Table 6.2D.2.4.1-3: Test Configuration Table for Power Class 1.5 UEs

Initial Conditions				
Test Environment as specified in TS 38.508-1 [5] subclause 4.1			Normal, TL/VL, TL/VH, TH/VL, TH/VH	
Test Frequencies as specified in TS 38.508-1 [5] subclause 4.3.1			Low range, High range	
Test Channel Bandwidths as specified in TS 38.508-1 [5] subclause 4.3.1			Lowest, Highest	
Test SCS as specified in Table 5.3.5-1			Lowest and Highest	
Test Parameters for Channel Bandwidths				
Test ID	**Freq**	**Downlink Configuration**	**Uplink Configuration**	
		N/A	**Modulation**	**RB allocation (NOTE 1)**
1	Default		CP-OFDM QPSK	Inner Full
2	Low		CP-OFDM QPSK	Edge_1RB_Left
3	High		CP-OFDM QPSK	Edge_1RB_Right
4	Default		CP-OFDM QPSK	Outer Full
5	Default		CP-OFDM 16 QAM	Inner Full
6	Low		CP-OFDM 16 QAM	Edge_1RB_Left
7	High		CP-OFDM 16 QAM	Edge_1RB_Right
8	Default		CP-OFDM 16 QAM	Outer Full
9	Low		CP-OFDM 64 QAM	Edge_1RB_Left
10	High		CP-OFDM 64 QAM	Edge_1RB_Right
11	Default		CP-OFDM 64 QAM	Outer Full
12	Low		CP-OFDM 256 QAM	Edge_1RB_Left
13	High		CP-OFDM 256 QAM	Edge_1RB_Right
14	Default		CP-OFDM 256 QAM	Outer Full

NOTE 1: The specific configuration of each RB allocation is defined in Table 6.1-1.
NOTE 2: CP-OFDM 256 QAM test applies only for UEs which supports 256QAM in FR1.

Table 6.2D.2.4.1-3a: Test Configuration Table for power class 1.5 UEs supporting ULFPTx except the feature *ul-FullPwrMode-r16* or *ul-FullPwrMode2-TPMIGroup-r16* (contiguous allocation)

Initial Conditions	
Test Environment as specified in TS 38.508-1 [5] subclause 4.1	Normal, TL/VL, TL/VH, TH/VL, TH/VH
Test Frequencies as specified in TS 38.508-1 [5] subclause 4.3.1	Low range, High range
Test Channel Bandwidths as specified in TS 38.508-1 [5] subclause 4.3.1	Lowest, Highest
Test SCS as specified in Table 5.3.5-1	Lowest, Highest

Test Parameters for Channel Bandwidths				
Test ID	**Freq**	**Downlink Configuration**	**Uplink Configuration**	
		N/A for Maximum Power Reduction (MPR) test case	**Modulation (NOTE 2)**	**RB allocation (NOTE 1)**
1	Default		DFT-s-OFDM Pi/2 BPSK	Inner Full
2	Low		DFT-s-OFDM Pi/2 BPSK	Edge_1RB_Left
3	High		DFT-s-OFDM Pi/2 BPSK	Edge_1RB_Right
4	Default		DFT-s-OFDM Pi/2 BPSK	Outer Full
5	Default		DFT-s-OFDM QPSK	Inner Full
6	Low		DFT-s-OFDM QPSK	Edge_1RB_Left
7	High		DFT-s-OFDM QPSK	Edge_1RB_Right
8	Default		DFT-s-OFDM QPSK	Outer Full
9	Default		DFT-s-OFDM 16 QAM	Inner Full
10	Low		DFT-s-OFDM 16 QAM	Edge_1RB_Left
11	High		DFT-s-OFDM 16 QAM	Edge_1RB_Right
12	Default		DFT-s-OFDM 16 QAM	Outer Full
13	Low		DFT-s-OFDM 64 QAM	Edge_1RB_Left
14	High		DFT-s-OFDM 64 QAM	Edge_1RB_Right
15	Default		DFT-s-OFDM 64 QAM	Outer Full
16	Low		DFT-s-OFDM 256 QAM	Edge_1RB_Left
17	High		DFT-s-OFDM 256 QAM	Edge_1RB_Right
18	Default		DFT-s-OFDM 256 QAM	Outer Full
19	Default		CP-OFDM QPSK	Inner Full
20	Low		CP-OFDM QPSK	Edge_1RB_Left
21	High		CP-OFDM QPSK	Edge_1RB_Right
22	Default		CP-OFDM QPSK	Outer Full
23	Default		CP-OFDM 16 QAM	Inner Full
24	Low		CP-OFDM 16 QAM	Edge_1RB_Left
25	High		CP-OFDM 16 QAM	Edge_1RB_Right
26	Default		CP-OFDM 16 QAM	Outer Full
27	Low		CP-OFDM 64 QAM	Edge_1RB_Left
28	High		CP-OFDM 64 QAM	Edge_1RB_Right
29	Default		CP-OFDM 64 QAM	Outer Full
30	Low		CP-OFDM 256 QAM	Edge_1RB_Left
31	High		CP-OFDM 256 QAM	Edge_1RB_Right
32	Default		CP-OFDM 256 QAM	Outer Full

NOTE 1: The specific configuration of each RB allocation is defined in Table 6.1-1.
NOTE 2: DFT-s-OFDM Pi/2 BPSK test applies only for UEs which supports half Pi BPSK in FR1.
NOTE 3: Test ID 19 ~ 32 with CP-OFDM modulation are not needed if PDCCH DCI format 0_1 indicates ULFPTx_Mode1.

1. Connect the SS to the UE antenna connectors as shown in TS 38.508-1 [5] Annex A, Figure A.3.1.1.2 for TE diagram and section A.3.2 for UE diagram.
2. The parameter settings for the cell are set up according to TS 38.508-1 [5] subclause 4.4.3.
3. Downlink signals are initially set up according to Annex C.0, C.1, C.2, and uplink signals according to Annex G.0, G.1, G.2, G.3.0.
4. The UL Reference Measurement Channel is set according to Table 6.2D.2.4.1-1, Table 6.2D.2.4.1-2 or Table 6.2D.2.4.1-3.
5. Propagation conditions are set according to Annex B.0.
6. Ensure the UE is in state RRC_CONNECTED with generic procedure parameters Connectivity *NR*, Connected without release *On*, Test Mode *On* and Test Loop Function *On* according to TS 38.508-1 [5] clause 4.5. Message contents are defined in clause 6.2D.2.4.3.

6.2D.2.4.2 Test procedure

1. SS sends uplink scheduling information for each UL HARQ process via PDCCH DCI format 0_1 for C_RNTI to schedule the UL RMC according to Table 6.2D.2.4.1-1. Since the UE has no payload and no loopback data to send the UE sends uplink MAC padding bits on the UL RMC. The PDCCH DCI format 0_1 is specified with the condition 2TX_UL_MIMO in 38.508-1 [5] subclause 4.3.6.1.1.2.
2. Send continuously uplink power control "up" commands in every uplink scheduling information to the UE; allow at least 200ms starting from the first TPC command in this step for the UE to reach P_{UMAX} level.
3. Measure the sum of the mean power of the UE from both transmit antenna connectors in the channel bandwidth of the radio access mode. The period of measurement shall be at least the continuous duration of one active sub-frame (1ms) and in the uplink symbols. For TDD symbol with transient periods are not under test.
4. If UE supports ULFPTx, repeat test steps 1~3 with UL RMC according to Table 6.2D.2.4.1-1a, Table 6.2D.2.4.1-2a or Table 6.2D.2.4.1-3a. The PDCCH DCI format 0_1 is specified with the condition ULFPTx_Mode1, ULFPTx_Mode2 or ULFPTx_ModeFull in 38.508-1 [5] subclause 4.3.6.1.1.2 depending on UE reported capability. Message contents are according to TS 38.508-1 [5] clause 4.6.3 Table 4.6.3-118 with condition TRANSFORM_PRECODER_ENABLED.

NOTE 1: When switching to DFT-s-OFDM waveform, as specified in the test configuration Table 6.2D.2.4.1-1a, Table 6.2D.2.4.1-2a or Table 6.2D.2.4.1-3a, send an NR RRCReconfiguration message according to TS 38.508-1 [5] clause 4.6.3 Table 4.6.3-118 PUSCH-Config with TRANSFORM_PRECODER_ENABLED condition.

6.2D.2.4.3 Message contents

Message contents are according to TS 38.508-1 [5] subclause 4.6 and 5.4 ensuring Table 4.6.3-182 with the condition 2TX_UL_MIMO.

6.2D.2.5 Test requirement

The maximum output power, derived in step 3 shall be within the range prescribed by the nominal maximum output power and tolerance in Table 6.2D.2.5-1, Table 6.2D.2.5-2, Table 6.2D.2.5-3, or Table 6.2D.2.5-4. The maximum output power, derived in step 4 shall be within the range prescribed by the nominal maximum output power and tolerance in Table 6.2D.2.5-1a, Table 6.2D.2.5-2a, Table 6.2D.2.5-3a, or Table 6.2D.2.5-4a.

Table 6.2D.2.5-1: UE Power Class test requirements (for Band n1, n2, n3, n7, n25, n30, n34, n38, n39, n40, n41, n48, n66, n70, n71, n77, n78, n79, n97) for Power Class 3

Test ID	$P_{PowerClass}$ (dBm)	$\Delta P_{PowerClass}$ (dB)	MPR (dB)	$\Delta T_{C,c}$ (dB)	$P_{CMAX\_L,f,c}$ (dBm)	$T(P_{CMAX\_L,f,c})$ (dB)	$T_{L,c}$	Upper limit (dBm)	Lower limit (dBm)
1	23	0	1.5	0 (1.5²)	21.5 (20.0²)	5.0 (6.0²)	3	25.0 + TT	16.5 - TT (14.0 - TT²)
2	23	0	3	0 (1.5²)	20.0 (18.5²)	6.0 (5.0²)	3	25.0 + TT	14.0 - TT (13.5 - TT²)
3	23	0	3	0 (1.5²)	20.0 (18.5²)	6.0 (5.0²)	3	25.0 + TT	14.0 - TT (13.5 - TT²)
4	23	0	3	0 (1.5²)	20.0 (18.5²)	6.0 (5.0²)	3	25.0 + TT	14.0 - TT (13.5 - TT²)
5	23	0	2	0 (1.5²)	21.0 (19.5²)	5.0 (5.0²)	3	25.0 + TT	16.0 - TT (14.5 - TT²)
6	23	0	3	0 (1.5²)	20.0 (18.5²)	6.0 (5.0²)	3	25.0 + TT	14.0 - TT (13.5 - TT²)
7	23	0	3	0 (1.5²)	20.0 (18.5²)	6.0 (5.0²)	3	25.0 + TT	14.0 - TT (13.5 - TT²)
8	23	0	3	0 (1.5²)	20.0 (18.5²)	6.0 (5.0²)	3	25.0 + TT	14.0 - TT (13.5 - TT²)
9	23	0	3.5	0 (1.5²)	19.5 (18.0²)	5.0 (5.0²)	3	25.0 + TT	14.5 - TT (13.0 - TT²)
10	23	0	3.5	0 (1.5²)	19.5 (18.0²)	5.0 (5.0²)	3	25.0 + TT	14.5 - TT (13.0 - TT²)
11	23	0	3.5	0 (1.5²)	19.5 (18.0²)	5.0 (5.0²)	3	25.0 + TT	14.5 - TT (13.0 - TT²)
12	23	0	6.5	0 (1.5²)	16.5 (15.0²)	5.0 (6.0²)	3	25.0 + TT	11.5 - TT (9.0 - TT²)
13	23	0	6.5	0 (1.5²)	16.5 (15.0²)	5.0 (6.0²)	3	25.0 + TT	11.5 - TT (9.0 - TT²)
14	23	0	6.5	0 (1.5²)	16.5 (15.0²)	5.0 (6.0²)	3	25.0 + TT	11.5 - TT (9.0 - TT²)

NOTE 1: $P_{PowerClass}$ is the maximum UE power specified without taking into account the tolerance.
NOTE 2: For Band n2, n3, n7, n25, n41, transmission bandwidths confined within F_{UL_low} and F_{UL_low} + 4 MHz or F_{UL_high} – 4 MHz and F_{UL_high}.
NOTE 3: TT for each frequency and channel bandwidth is specified in Table 6.2D.2.5-5.

Table 6.2D.2.5-1a: UE Power Class test requirements (for Band n1, n2, n3, n7, n25, n30, n34, n38, n41, n48, n66, n70, n71, n77, n78, n79) for Power Class 3 supporting ULFPTx

TBD

Table 6.2D.2.5-2: UE Power Class test requirements (for Bands n41, n77, n78, n79) for Power Class 2

Test ID	$P_{PowerClass}$ (dBm)	$\Delta P_{PowerClass}$ (dB)	MPR (dB)	$\Delta T_{C,c}$ (dB)	$P_{CMAX\_L,f,c}$ (dBm)	$T(P_{CMAX\_L,f,c})$ (dB)	$T_{L,c}$ (dB)	Upper limit (dBm)	Lower limit (dBm)
1	26	0	1.5	0 (1.5[2])	24.5 (23.0[2])	2.0 (2.5[2])	3	28.0 + TT	21.5 - TT (20.0 - TT[2])
2	26	0	3.5	0 (1.5[2])	22.5 (21.0[2])	5.0 (5.0[2])	3	28.0 + TT	17.5 - TT (16.0 - TT[2])
3	26	0	3.5	0 (1.5[2])	22.5 (21.0[2])	5.0 (5.0[2])	3	28.0 + TT	17.5 - TT (16.0 - TT[2])
4	26	0	3	0 (1.5[2])	23.0 (21.5[2])	3.0 (5.0[2])	3	28.0 + TT	20.0 - TT (16.5 - TT[2])
5	26	0	2	0 (1.5[2])	24.0 (22.5[2])	3.0 (5.0[2])	3	28.0 + TT	21.0 - TT (17.5 - TT[2])
6	26	0	3.5	0 (1.5[2])	22.5 (21.0[2])	5.0 (5.0[2])	3	28.0 + TT	17.5 - TT (16.0 - TT[2])
7	26	0	3.5	0 (1.5[2])	22.5 (21.0[2])	5.0 (5.0[2])	3	28.0 + TT	17.5 - TT (16.0 - TT[2])
8	26	0	3	0 (1.5[2])	23.0 (21.5[2])	3.0 (5.0[2])	3	28.0 + TT	20.0 - TT (16.5 - TT[2])
9	26	0	3.5	0 (1.5[2])	22.5 (21.0[2])	5.0 (5.0[2])	3	28.0 + TT	17.5 - TT (16.0 - TT[2])
10	26	0	3.5	0 (1.5[2])	22.5 (21.0[2])	5.0 (5.0[2])	3	28.0 + TT	17.5 - TT (16.0 - TT[2])
11	26	0	3.5	0 (1.5[2])	22.5 (21.0[2])	5.0 (5.0[2])	3	28.0 + TT	17.5 - TT (16.0 - TT[2])
12	26	0	6.5	0 (1.5[2])	19.5 (18.0[2])	5.0 (5.0[2])	3	28.0 + TT	14.5 - TT (13.0 - TT[2])
13	26	0	6.5	0 (1.5[2])	19.5 (18.0[2])	5.0 (5.0[2])	3	28.0 + TT	14.5 - TT (13.0 - TT[2])
14	26	0	6.5	0 (1.5[2])	19.5 (18.0[2])	5.0 (5.0[2])	3	28.0 + TT	14.5 - TT (13.0 - TT[2])

NOTE 1: $P_{PowerClass}$ is the maximum UE power specified without taking into account the tolerance.
NOTE 2: For Band n41, transmission bandwidths confined within F_{UL_low} and F_{UL_low} + 4 MHz or F_{UL_high} – 4 MHz and F_{UL_high}.
NOTE 3: TT for each frequency and channel bandwidth is specified in Table 6.2D.2.5-5.

The maximum output power, derived in step 4 shall be within the range prescribed by the nominal maximum output power and tolerance in Table 6.2D.2.5-2a and Table 6.2D.2.5-2b.

Table 6.2D.2.5-2a: UE Power Class test requirements (for Band n1, n2, n3, n7, n25, n30, n34, n38, n41, n48, n66, n70, n71, n77, n78, n79) for Power Class 3 with supporting ULFPTx

Test ID	$P_{PowerClass}$ (dBm)	$\Delta P_{PowerClass}$ (dB)	MPR (dB)	$\Delta T_{C,c}$ (dB)	$P_{CMAX\_L,f,c}$ (dBm)	$T(P_{CMAX\_L,f,c})$ (dB)	$T_{L,c}$ (dB)	Upper limit (dBm)	Lower limit (dBm)
1	23	0	0	0 (1.5²)	23.0 (21.5²)	3.0 (5.0²)	3	25.0 + TT	20.0 - TT (16.5 - TT²)
2	23	0	0.5	0 (1.5²)	22.5 (21.0²)	5.0	3	25.0 + TT	17.5 - TT (16.0 - TT²)
3	23	0	0.5	0 (1.5²)	22.5 (21.0²)	5.0	3	25.0 + TT	17.5 - TT (16.0 - TT²)
4	23	0	0.5	0 (1.5²)	22.5 (21.0²)	5.0	3	25.0 + TT	17.5 - TT (16.0 - TT²)
5	23	0	0	0 (1.5²)	23.0 (21.5²)	3.0 (5.0²)	3	25.0 + TT	20.0 - TT (16.5 - TT²)
6	23	0	1	0 (1.5²)	22.0 (20.5²)	5.0 (6.0²)	3	25.0 + TT	17.0 - TT (14.5 - TT²)
7	23	0	1	0 (1.5²)	22.0 (20.5²)	5.0 (6.0²)	3	25.0 + TT	17.0 - TT (14.5 - TT²)
8	23	0	1	0 (1.5²)	22.0 (20.5²)	5.0 (6.0²)	3	25.0 + TT	17.0 - TT (14.5 - TT²)
9	23	0	1	0 (1.5²)	22.0 (20.5²)	5.0 (6.0²)	3	25.0 + TT	17.0 - TT (14.5 - TT²)
10	23	0	2	0 (1.5²)	21.0 (19.5²)	5.0	3	25.0 + TT	16.0 - TT (14.5 - TT²)
11	23	0	2	0 (1.5²)	21.0 (19.5²)	5.0	3	25.0 + TT	16.0 - TT (14.5 - TT²)
12	23	0	2	0 (1.5²)	21.0 (19.5²)	5.0	3	25.0 + TT	16.0 - TT (14.5 - TT²)
13	23	0	2.5	0 (1.5²)	20.5 (19.0²)	6.0 (5.0²)	3	25.0 + TT	14.5 - TT (14.0 - TT²)
14	23	0	2.5	0 (1.5²)	20.5 (19.0²)	6.0 (5.0²)	3	25.0 + TT	14.5 - TT (14.0 - TT²)
15	23	0	2.5	0 (1.5²)	20.5 (19.0²)	6.0 (5.0²)	3	25.0 + TT	14.5 - TT (14.0 - TT²)
16	23	0	4.5	0 (1.5²)	18.5 (17.0²)	5.0	3	25.0 + TT	13.5 - TT (12.0 - TT²)
17	23	0	4.5	0 (1.5²)	18.5 (17.0²)	5.0	3	25.0 + TT	13.5 - TT (12.0 - TT²)
18	23	0	4.5	0 (1.5²)	18.5 (17.0²)	5.0	3	25.0 + TT	13.5 - TT (12.0 - TT²)
19	23	0	1.5	0 (1.5²)	21.5 (20.0²)	5.0 (6.0²)	3	25.0 + TT	16.5 - TT (14.0 - TT²)
20	23	0	3	0 (1.5²)	20.0 (18.5²)	6.0 (5.0²)	3	25.0 + TT	14.0 - TT (13.5 - TT²)

21	23	0	3	0	(1.5^2)	20.0	(18.5^2)	6.0	(5.0^2)	3	25.0 + TT	14.0 - TT (13.5 - TT^2)
22	23	0	3	0	(1.5^2)	20.0	(18.5^2)	6.0	(5.0^2)	3	25.0 + TT	14.0 - TT (13.5 - TT^2)
23	23	0	2	0	(1.5^2)	21.0	(19.5^2)	5.0		3	25.0 + TT	16.0 - TT (14.5 - TT^2)
24	23	0	3	0	(1.5^2)	20.0	(18.5^2)	6.0	(5.0^2)	3	25.0 + TT	14.0 - TT (13.5 - TT^2)
25	23	0	3	0	(1.5^2)	20.0	(18.5^2)	6.0	(5.0^2)	3	25.0 + TT	14.0 - TT (13.5 - TT^2)
26	23	0	3	0	(1.5^2)	20.0	(18.5^2)	6.0	(5.0^2)	3	25.0 + TT	14.0 - TT (13.5 - TT^2)
27	23	0	3.5	0	(1.5^2)	19.5	(18.0^2)	5.0		3	25.0 + TT	14.5 - TT (13.0 - TT^2)
28	23	0	3.5	0	(1.5^2)	19.5	(18.0^2)	5.0		3	25.0 + TT	14.5 - TT (13.0 - TT^2)
29	23	0	3.5	0	(1.5^2)	19.5	(18.0^2)	5.0		3	25.0 + TT	14.5 - TT (13.0 - TT^2)
30	23	0	6.5	0	(1.5^2)	16.5	(15.0^2)	5.0	(6.0^2)	3	25.0 + TT	11.5 - TT (9.0 - TT^2)
31	23	0	6.5	0	(1.5^2)	16.5	(15.0^2)	5.0	(6.0^2)	3	25.0 + TT	11.5 - TT (9.0 - TT^2)
32	23	0	6.5	0	(1.5^2)	16.5	(15.0^2)	5.0	(6.0^2)	3	25.0 + TT	11.5 - TT (9.0 - TT^2)

NOTE 1: $P_{PowerClass}$ is the maximum UE power specified without taking into account the tolerance.
NOTE 2: For Band n41, transmission bandwidths confined within F_{UL_low} and F_{UL_low} + 4 MHz or F_{UL_high} – 4 MHz and F_{UL_high}.
NOTE 3: TT for each frequency and channel bandwidth is specified in Table 6.2D.2.5-3.

Table 6.2D.2.5-2b: UE Power Class test requirements (for Bands n41, n77, n78, n79) for Power Class 2 with supporting ULFPTx

TBD

Table 6.2D.2.5-3: UL MIMO MPR test requirements (for Band n41, n77, n78, n79) for Power Class 1.5 UEs

Test ID	$P_{PowerClass}$ (dBm)	$\Delta P_{PowerClass}$ (dB)	MPR (dB)	$\Delta T_{C,c}$ (dB)	$P_{CMAX\_L,f,c}$ (dBm)	$T(P_{CMAX\_L,f,c})$ (dB)	$T_{L,c}$	Upper limit (dBm)	Lower limit (dBm)
1	29	0	2	0 (1.5²)	27.0 (25.5²)	3.0	3	31.0 + TT	24.0 - TT (22.5 - TT²)
2	29	0	6.5	0 (1.5²)	22.5 (21.0²)	5.0	3	31.0 + TT	17.5 - TT (16.0 - TT²)
3	29	0	6.5	0 (1.5²)	22.5 (21.0²)	5.0	3	31.0 + TT	17.5 - TT (16.0 - TT²)
4	29	0	4.5	0 (1.5²)	24.5 (23.0²)	3.0	3	31.0 + TT	21.5 - TT (20.0 - TT²)
5	29	0	2.5	0 (1.5²)	26.5 (25.0²)	3.0	3	31.0 + TT	23.5 - TT (22.0 - TT²)
6	29	0	6.5	0 (1.5²)	22.5 (21.0²)	5.0	3	31.0 + TT	17.5 - TT (16.0 - TT²)
7	29	0	6.5	0 (1.5²)	22.5 (21.0²)	5.0	3	31.0 + TT	17.5 - TT (16.0 - TT²)
8	29	0	4.5	0 (1.5²)	24.5 (23.0²)	3.0	3	31.0 + TT	21.5 - TT (20.0 - TT²)
9	29	0	6.5	0 (1.5²)	22.5 (21.0²)	5.0	3	31.0 + TT	17.5 - TT (16.0 - TT²)
10	29	0	6.5	0 (1.5²)	22.5 (21.0²)	5.0	3	31.0 + TT	17.5 - TT (16.0 - TT²)
11	29	0	5	0 (1.5²)	24.0 (22.5²)	3.0 (5.0²)	3	31.0 + TT	21.0 - TT (17.5 - TT²)
12	29	0	8.5	0 (1.5²)	20.5 (19.0²)	6.0 (5.0²)	3	31.0 + TT	14.5 - TT (14.0- TT²)
13	29	0	8.5	0 (1.5²)	20.5 (19.0²)	6.0 (5.0²)	3	31.0 + TT	14.5 - TT (14.0 - TT²)
14	29	0	8.5	0 (1.5²)	20.5 (19.0²)	6.0 (5.0²)	3	31.0 + TT	14.5 - TT (14.0 - TT²)

NOTE 1: $P_{PowerClass}$ is the maximum UE power specified without taking into account the tolerance.
NOTE 2: For Band n41, transmission bandwidths confined within F_{UL_low} and F_{UL_low} + 4 MHz or F_{UL_high} – 4 MHz and F_{UL_high}.
NOTE 3: TT for each frequency and channel bandwidth is specified in Table 6.2D.2.5-5.

Table 6.2D.2.5-3a: UL MIMO MPR test requirements (for Band n41, n77, n78, n79) for Power Class 1.5 UEs supporting ULFPTx except the feature *ul-FullPwrMode-r16* or *ul-FullPwrMode2-TPMIGroup-r16*

Test ID	$P_{PowerClass}$ (dBm)	$\Delta P_{PowerClass}$ (dB)	MPR (dB)	$\Delta T_{C,c}$ (dB)	$P_{CMAX\_L,f,c}$ (dBm)	$T(P_{CMAX\_L,f,c})$ (dB)	$T_{L,c}$ (dB)	Upper limit (dBm)	Lower limit (dBm)
1	29	0	0.5	0 (1.5²)	28.5 (27.0²)	3.0	3	31.0 + TT	25.5 – TT (24.0 - TT²)
2	29	0	6	0 (1.5²)	23.0 (21.5²)	3.0 (5.0²)	3	31.0 + TT	20.0 – TT (18.5 - TT²)
3	29	0	6	0 (1.5²)	23.0 (21.5²)	3.0 (5.0²)	3	31.0 + TT	20.0 – TT (18.5 - TT²)
4	29	0	2	0 (1.5²)	27.0 (25.5²)	3.0	3	31.0 + TT	24.0 – TT (22.5 - TT²)
5	29	0	0.5	0 (1.5²)	28.5 (27.0²)	3.0	3	31.0 + TT	25.5 – TT (24.0 - TT²)
6	29	0	6.5	0 (1.5²)	22.5 (21.0²)	5.0	3	31.0 + TT	17.5 – TT (16.0 - TT²)
7	29	0	6.5	0 (1.5²)	22.5 (21.0²)	5.0	3	31.0 + TT	17.5 – TT (16.0 - TT²)
8	29	0	2.5	0 (1.5²)	26.5 (25.0²)	3.0	3	31.0 + TT	23.5 - TT (22.0 - TT²)
9	29	0	1.5	0 (1.5²)	27.5 (26.0²)	3.0	3	31.0 + TT	24.5 - TT (23.0 - TT²)
10	29	0	6.5	0 (1.5²)	22.5 (21.0²)	5.0	3	31.0 + TT	17.5 - TT (16.0 - TT²)
11	29	0	6.5	0 (1.5²)	22.5 (21.0²)	5.0	3	31.0 + TT	17.5 - TT (16.0 - TT²)
12	29	0	3.5	0 (1.5²)	25.5 (24.0²)	3.0	3	31.0 + TT	22.5 - TT (21.0 - TT²)
13	29	0	6.5	0 (1.5²)	22.5 (21.0²)	5.0	3	31.0 + TT	17.5 - TT (16.0 - TT²)
14	29	0	6.5	0 (1.5²)	22.5 (21.0²)	5.0	3	31.0 + TT	17.5 - TT (16.0 - TT²)
15	29	0	4	0 (1.5²)	25.0 (23.5²)	3.0	3	31.0 + TT	22.0 - TT (20.5 - TT²)
16	29	0	6.5	0 (1.5²)	22.5 (21.0²)	5.0	3	31.0 + TT	17.5 - TT (16.0- TT²)
17	29	0	6.5	0 (1.5²)	22.5 (21.0²)	5.0	3	31.0 + TT	17.5 - TT (16.0 - TT²)
18	29	0	6.5	0 (1.5²)	22.5 (21.0²)	5.0	3	31.0 + TT	17.5 - TT (16.0 - TT²)
19	29	0	2	0 (1.5²)	27.0 (25.5²)	3.0	3	31.0 + TT	24.0 - TT (22.5 - TT²)
20	29	0	6.5	0 (1.5²)	22.5 (21.0²)	5.0	3	31.0 + TT	17.5 - TT (16.0 - TT²)

21	29	0	6.5	0	(1.5^2)	22.5	(21.0^2)	5.0		3	31.0 + TT	17.5 - TT (16.0 - TT^2)
22	29	0	4.5	0	(1.5^2)	24.5	(23.0^2)	3.0		3	31.0 + TT	21.5 - TT (20.0 - TT^2)
23	29	0	2.5	0	(1.5^2)	26.5	(25.0^2)	3.0		3	31.0 + TT	23.5 - TT (22.0 - TT^2)
24	29	0	6.5	0	(1.5^2)	22.5	(21.0^2)	5.0		3	31.0 + TT	17.5 - TT (16.0 - TT^2)
25	29	0	6.5	0	(1.5^2)	22.5	(21.0^2)	5.0		3	31.0 + TT	17.5 - TT (16.0 - TT^2)
26	29	0	4.5	0	(1.5^2)	24.5	(23.0^2)	3.0		3	31.0 + TT	21.5 - TT (20.0 - TT^2)
27	29	0	6.5	0	(1.5^2)	22.5	(21.0^2)	5.0		3	31.0 + TT	17.5 - TT (16.0 - TT^2)
28	29	0	6.5	0	(1.5^2)	22.5	(21.0^2)	5.0		3	31.0 + TT	17.5 - TT (16.0 - TT^2)
29	29	0	5	0	(1.5^2)	24.0	(22.5^2)	3.0	(5.0^2)	3	31.0 + TT	21.0 - TT (17.5 - TT^2)
30	29	0	8.5	0	(1.5^2)	20.5	(19.0^2)	6.0	(5.0^2)	3	31.0 + TT	14.5 - TT (14.0- TT^2)
31	29	0	8.5	0	(1.5^2)	20.5	(19.0^2)	6.0	(5.0^2)	3	31.0 + TT	14.5 - TT (14.0 - TT^2)
32	29	0	8.5	0	(1.5^2)	20.5	(19.0^2)	6.0	(5.0^2)	3	31.0 + TT	14.5 - TT (14.0 - TT^2)

NOTE 1: $P_{PowerClass}$ is the maximum UE power specified without taking into account the tolerance.
NOTE 2: For Band n41, transmission bandwidths confined within F_{UL_low} and F_{UL_low} + 4 MHz or F_{UL_high} – 4 MHz and F_{UL_high}.
NOTE 3: TT for each frequency and channel bandwidth is specified in Table 6.2D.2.5-5.

Table 6.2D.2.5-4: UL MIMO MPR test requirements (for Band n41, n77, n78, n79) for Power Class 1.5 FWA UEs

Test ID	$P_{PowerClass}$ (dBm)	$\Delta P_{PowerClass}$ (dB)	MPR (dB)	$\Delta T_{C,c}$ (dB)	$P_{CMAX\_L,f,c}$ (dBm)	$T(P_{CMAX\_L,f,c})$ (dB)	$T_{L,c}$	Upper limit (dBm)	Lower limit (dBm)
1	29	0	1.5	0 (1.5[3])	27.5 (26.0[3])	3.0	3	31.0 + TT	24.5 - TT (23.0 - TT[3])
2	29	0	6.5	0 (1.5[3])	22.5 (21.0[3])	5.0	3	31.0 + TT	17.5 – TT (16.0 - TT[3])
3	29	0	6.5	0 (1.5[3])	22.5 (21.0[3])	5.0	3	31.0 + TT	17.5 – TT (16.0 - TT[3])
4	29	0	4	0 (1.5[3])	25.0 (23.5[3])	3.0	3	31.0 + TT	22.0 – TT (20.5 - TT[3])
5	29	0	2	0 (1.5[3])	27.0 (25.5[3])	3.0	3	31.0 + TT	24.0 – TT (22.5 - TT[3])
6	29	0	6.5	0 (1.5[3])	22.5 (21.0[3])	5.0	3	31.0 + TT	17.5 - TT (16.0 - TT[3])
7	29	0	6.5	0 (1.5[3])	22.5 (21.0[3])	5.0	3	31.0 + TT	17.5 - TT (16.0 - TT[3])
8	29	0	4	0 (1.5[3])	25.0 (23.5[3])	3.0	3	31.0 + TT	22.0 - TT (20.5 - TT[3])
9	29	0	6.5	0 (1.5[3])	22.5 (21.0[3])	5.0	3	31.0 + TT	17.5 - TT (16.0 - TT[3])
10	29	0	6.5	0 (1.5[3])	22.5 (21.0[3])	5.0	3	31.0 + TT	17.5 - TT (16.0 - TT[3])
11	29	0	4.5	0 (1.5[3])	24.5 (23.0[3])	3.0	3	31.0 + TT	21.5 - TT (20.0 - TT[3])
12	29	0	7.5	0 (1.5[3])	21.5 (20.0[3])	5.0 (6.0[3])	3	31.0 + TT	16.5 - TT (14.0- TT[3])
13	29	0	7.5	0 (1.5[3])	21.5 (20.0[3])	5.0 (6.0[3])	3	31.0 + TT	16.5 - TT (14.0 - TT[3])
14	29	0	7.5	0 (1.5[3])	21.5 (20.0[3])	5.0 (6.0[3])	3	31.0 + TT	16.5 - TT (14.0 - TT[3])

NOTE 1: This table is targeted to large FWA form factor with 20 dB or above antenna isolation.
NOTE 2: $P_{PowerClass}$ is the maximum UE power specified without taking into account the tolerance.
NOTE 3: For Band n41, transmission bandwidths confined within F_{UL_low} and F_{UL_low} + 4 MHz or F_{UL_high} – 4 MHz and F_{UL_high}.
NOTE 4: TT for each frequency and channel bandwidth is specified in Table 6.2D.2.5-5.

Table 6.2D.2.5-4a: UL MIMO MPR test requirements (for Band n41, n77, n78, n79) for Power Class 1.5 FWA UEs supporting ULFPTx except the feature *ul-FullPwrMode-r16* or *ul-FullPwrMode2-TPMIGroup-r16*

Test ID	$P_{PowerClass}$ (dBm)	$\Delta P_{PowerClass}$ (dB)	MPR (dB)	$\Delta T_{C,c}$ (dB)	$P_{CMAX\_L,f,c}$ (dBm)	$T(P_{CMAX\_L,f,c})$ (dB)	$T_{L,c}$ (dB)	Upper limit (dBm)	Lower limit (dBm)
1	29	0	0	0 (1.5[3])	29.0 (27.5[3])	3.0	3	31.0 + TT	26.0 – TT (24.5 - TT[3])
2	29	0	6	0 (1.5[3])	23.0 (21.5[3])	3.0 (5.0[3])	3	31.0 + TT	20.0 – TT (18.5 - TT[3])
3	29	0	6	0 (1.5[3])	23.0 (21.5[3])	3.0 (5.0[3])	3	31.0 + TT	20.0 – TT (18.5 - TT[3])
4	29	0	1.5	0 (1.5[3])	27.5 (26.0[3])	3.0	3	31.0 + TT	24.5 – TT (23.0 - TT[3])
5	29	0	0	0 (1.5[3])	29.0 (27.5[3])	3.0	3	31.0 + TT	26.0 – TT (24.5 - TT[3])
6	29	0	6.5	0 (1.5[3])	22.5 (21.0[3])	5.0	3	31.0 + TT	17.5 – TT (16.0 - TT[3])
7	29	0	6.5	0 (1.5[3])	22.5 (21.0[3])	5.0	3	31.0 + TT	17.5 – TT (16.0 - TT[3])
8	29	0	2	0 (1.5[3])	27.0 (25.5[3])	3.0	3	31.0 + TT	24.0 - TT (22.5 - TT[3])
9	29	0	1	0 (1.5[3])	28.0 (26.5[3])	3.0	3	31.0 + TT	25.0 - TT (23.5 - TT[3])
10	29	0	6.5	0 (1.5[3])	22.5 (21.0[3])	5.0	3	31.0 + TT	17.5 - TT (16.0 - TT[3])
11	29	0	6.5	0 (1.5[3])	22.5 (21.0[3])	5.0	3	31.0 + TT	17.5 - TT (16.0 - TT[3])
12	29	0	3	0 (1.5[3])	26.0 (24.5[3])	3.0	3	31.0 + TT	23.0 - TT (21.5 - TT[3])
13	29	0	6.5	0 (1.5[3])	22.5 (21.0[3])	5.0	3	31.0 + TT	17.5 - TT (16.0 - TT[3])
14	29	0	6.5	0 (1.5[3])	22.5 (21.0[3])	5.0	3	31.0 + TT	17.5 – TT (16.0 - TT[3])
15	29	0	3.5	0 (1.5[3])	25.5 (24.0[3])	3.0	3	31.0 + TT	22.5 - TT (21.0 - TT[3])
16	29	0	6.5	0 (1.5[3])	22.5 (21.0[3])	5.0	3	31.0 + TT	17.5 - TT (16.0- TT[3])
17	29	0	6.5	0 (1.5[3])	22.5 (21.0[3])	5.0	3	31.0 + TT	17.5 - TT (16.0 - TT[3])
18	29	0	5.5	0 (1.5[3])	23.5 (22.0[3])	3.0 (5.0[3])	3	31.0 + TT	20.5 - TT (17.0 - TT[3])
19	29	0	1.5	0 (1.5[3])	27.5 (26.0[3])	3.0	3	31.0 + TT	24.5 - TT (23.0 - TT[3])
20	29	0	6.5	0 (1.5[3])	22.5 (21.0[3])	5.0	3	31.0 + TT	17.5 – TT (16.0 - TT[3])

21	29	0	6.5	0	(1.5[3])	22.5	(21.0[3])	5.0		3	31.0 + TT	17.5 – TT (16.0 - TT[3])
22	29	0	4	0	(1.5[3])	25.0	(23.5[3])	3.0		3	31.0 + TT	22.0 – TT (20.5 - TT[3])
23	29	0	2	0	(1.5[3])	27.0	(25.5[3])	3.0		3	31.0 + TT	24.0 – TT (22.5 - TT[3])
24	29	0	6.5	0	(1.5[3])	22.5	(21.0[3])	5.0		3	31.0 + TT	17.5 - TT (16.0 - TT[3])
25	29	0	6.5	0	(1.5[3])	22.5	(21.0[3])	5.0		3	31.0 + TT	17.5 - TT (16.0 - TT[3])
26	29	0	4	0	(1.5[3])	25.0	(23.5[3])	3.0		3	31.0 + TT	22.0 - TT (20.5 - TT[3])
27	29	0	6.5	0	(1.5[3])	22.5	(21.0[3])	5.0		3	31.0 + TT	17.5 - TT (16.0 - TT[3])
28	29	0	6.5	0	(1.5[3])	22.5	(21.0[3])	5.0		3	31.0 + TT	17.5 - TT (16.0 - TT[3])
29	29	0	4.5	0	(1.5[3])	24.5	(23.0[3])	3.0		3	31.0 + TT	21.5 - TT (20.0 - TT[3])
30	29	0	7.5	0	(1.5[3])	21.5	(20.0[3])	5.0	(6.0[3])	3	31.0 + TT	16.5 - TT (14.0- TT[3])
31	29	0	7.5	0	(1.5[3])	21.5	(20.0[3])	5.0	(6.0[3])	3	31.0 + TT	16.5 - TT (14.0 - TT[3])
32	29	0	7.5	0	(1.5[3])	21.5	(20.0[3])	5.0	(6.0[3])	3	31.0 + TT	16.5 - TT (14.0 - TT[3])

NOTE 1: This table is targeted to large FWA form factor with 20 dB or above antenna isolation.
NOTE 2: $P_{PowerClass}$ is the maximum UE power specified without taking into account the tolerance.
NOTE 3: For Band n41, transmission bandwidths confined within F_{UL_low} and F_{UL_low} + 4 MHz or F_{UL_high} – 4 MHz and F_{UL_high}.
NOTE 4: TT for each frequency and channel bandwidth is specified in Table 6.2D.2.5-5.

Table 6.2D.2.5-5: Test Tolerance (Maximum Power Reduction (MPR))

	f ≤ 3.0GHz	3.0GHz < f ≤ 6.0GHz
BW ≤ 40MHz	0.7	1.0
40MHz < BW ≤ 100MHz	1.0	1.0

For the UE which supports inter-band NR CA configuration, inter-band NR-DC configuration, SUL configuration or inter-band EN-DC configuration, $\Delta T_{IB,c}$ as specified in 6.2A.4.0.2 for NR CA, 6.2B.4.0.2 for NR-DC, clause 6.2C.2 for SUL, or TS 38.521-3 [14] clause 6.2B.4.2 for EN-DC applies. Unless otherwise stated, $\Delta T_{IB,c}$ is set to zero. In case the UE supports more than one of band combinations for CA, NR-DC, SUL or EN-DC, and an operating band belongs to more than one band combinations then

a) When the operating band frequency range is ≤ 1 GHz, the applicable additional $\Delta T_{IB,c}$ shall be the average value for all band combinations defined in clause 6.2A.4.0.2, 6.2B.4.0.2, 6.2C.2 in this specification and 6.2B.4.2 in TS 38.521-3 [14], truncated to one decimal place that apply for that operating band among the supported band combinations. In case there is a harmonic relation between low band UL and high band DL, then the maximum $\Delta T_{IB,c}$ among the different supported band combinations involving such band shall be applied.

b) When the operating band frequency range is > 1 GHz, the applicable additional $\Delta T_{IB,c}$ shall be the maximum value for all band combinations defined in clause 6.2A.4.0.2, 6.2B.4.0.2, 6.2C.2 in this specification and 6.2B.4.2 in TS 38.521-3 [14] for the applicable operating bands.

6.2D.3 UE additional maximum output power reduction for UL MIMO

Editor's Note:

- Supporting of ULFPTx is only completed for NS_04

6.2D.3.1 Test purpose

Additional emission requirements can be signalled by the network. Each additional emission requirement is associated a unique with network signalling (NS) value indicated in RRC signalling by an NR frequency band number of the applicable operating band and an associated value in the field *additionalSpectrumEmission.* Throughout this specification, the notion of indication or signalling of an NS value refers to the corresponding indication of an NR frequency band number of the applicable operating band (the IE *freqBandIndicatorNR*) and an associated value of *additionalSpectrumEmission* in the relevant RRC information elements [6].

To meet the additional requirements, additional maximum power reduction (A-MPR) is allowed for the maximum output power as specified in Table 6.2D.1.3-1. Unless stated otherwise, an A-MPR of 0 dB shall be used.

6.2D.3.2 Test applicability

The requirements of this test apply in test case 6.5D.2.3 Additional Spectrum Emission mask for UL MIMO for network signalling value NS_03, NS_03U, NS_04 to all types of NR UE release 15 and forward that support UL MIMO.

The requirements of this test apply in test case 6.5D.2.4.2 Adjacent channel leakage ratio for network signalling values NS_03U, NS_05U, and NS_100 to all types of NR Power Class 2 and 3 UE release 15 and forward.

The requirements of this test apply in test case 6.5D.3.3 Additional Spurious Emissions for network signalling value NS_04 to all types of NR UE release 15 and forward that support UL-MIMO.

6.2D.3.3 Minimum conformance requirements

For UE with two transmit antenna connectors in closed-loop spatial multiplexing scheme, the A-MPR values specified in subclause 6.2.3.3 shall apply to the maximum output power specified in Table 6.2D.1.3-1. The requirements shall be met with the UL MIMO configurations specified in Table 6.2D.1.3-2. For UE supporting UL MIMO, the maximum output power is defined as the sum of the maximum output power from both UE antenna connector. Unless stated otherwise, an A-MPR of 0 dB shall be used.

For UE support uplink full power transmission (ULFPTx) for UL MIMO, the A-MPR values specified in clause 6.2.3.3 shall apply to the maximum output power specified in Table 6.2D.1.3-1. The requirements shall be met with the PUSCH configurations specified in Table 6.2D.1.3-3, based upon UE's support of uplink full power transmission mode.

For the UE maximum output power modified by A-MPR, the power limits specified in subclause 6.2D.4.3 apply.

If UE is configured for transmission on single-antenna port, the requirements in subclause 6.2.3.3 apply.

The normative reference for this requirement is TS 38.101-1 [2] clause 6.2D.3.

6.2D.3.4 Test description

6.2D.3.4.1 Initial conditions

Initial conditions are a set of test configurations the UE needs to be tested in and the steps for the SS to take with the UE to reach the correct measurement state.

The initial test configurations consist of environmental conditions, test frequencies, test channel bandwidths and sub-carrier spacing based on NR operating bands specified in table 5.3.5-1. All of these configurations shall be tested with applicable test parameters for each combination of test channel bandwidth and sub-carrier spacing, and are shown in tables 6.2D.3.4.1-1 to 6.2D.3.4.1-11. The details of the uplink reference measurement channels (RMCs) are specified in Annex A.2. Configurations of PDSCH and PDCCH before measurement are specified in Annex C.2

Table 6.2D.3.4.1-1: Test Configuration table for NS_04

Initial Conditions						
Test Environment as specified in TS 38.508-1 [5] subclause 4.1				Normal		
Test Frequencies as specified in TS 38.508-1 [5] subclause 4.3.1				(See Freq column)		
Test Channel Bandwidths as specified in TS 38.508-1 [5] subclause 4.3.1				Lowest, Highest		
Test SCS as specified in Table 5.3.5-1				Lowest, Highest		
A-MPR test parameters for NS_04						
				Downlink Configuration	**Uplink Configuration**	
Test ID	**Freq**			N/A	**Modulation (NOTE 2)**	**RB allocation (NOTE 1)**
1	Low				CP-OFDM QPSK	Edge_1RB_Left
2	Table 6.2.3.4.1-2a - Table 6.2.3.4.1-2c				CP-OFDM QPSK	Edge_1RB_Left
3	Table 6.2.3.4.1-2d - Table 6.2.3.4.1-2f				CP-OFDM QPSK	Edge_1RB_Left
4	Low				CP-OFDM QPSK	Outer Full
5	High				CP-OFDM QPSK	Edge_1RB_Right
6	High				CP-OFDM QPSK	Outer Full
7	Low				CP-OFDM 16 QAM	Edge_1RB_Left
8	Table 6.2.3.4.1-2a - Table 6.2.3.4.1-2c				CP-OFDM 16 QAM	Edge_1RB_Left
9	Table 6.2.3.4.1-2d - Table 6.2.3.4.1-2f				CP-OFDM 16 QAM	Edge_1RB_Left
10	Low				CP-OFDM 16 QAM	Outer Full
11	High				CP-OFDM 16 QAM	Edge_1RB_Right
12	High				CP-OFDM 16 QAM	Outer Full
13	Low				CP-OFDM 64 QAM	Edge_1RB_Left
14	Table 6.2.3.4.1-2a - Table 6.2.3.4.1-2c				CP-OFDM 64 QAM	Edge_1RB_Left
15	Table 6.2.3.4.1-2d - Table 6.2.3.4.1-2f				CP-OFDM 64 QAM	Edge_1RB_Left
16	Low				CP-OFDM 64 QAM	Outer Full
17	High				CP-OFDM 64 QAM	Edge_1RB_Right
18	High				CP-OFDM 64 QAM	Outer Full
19	Low				CP-OFDM 256 QAM	Edge_1RB_Left
20	Table 6.2.3.4.1-2a - Table 6.2.3.4.1-2c				CP-OFDM 256 QAM	Edge_1RB_Left
21	Table 6.2.3.4.1-2d - Table 6.2.3.4.1-2f				CP-OFDM 256 QAM	Edge_1RB_Left
22	Low				CP-OFDM 256 QAM	Outer Full
23	High				CP-OFDM 256 QAM	Edge_1RB_Right
24	High				CP-OFDM 256 QAM	Outer Full
NOTE 1: The specific configuration of each RB allocation is defined in Table 6.1-1.						

Table 6.2D.3.4.1-1a: Test Configuration table for NS_04 with supporting ULFPTx

Initial Conditions	
Test Environment as specified in TS 38.508-1 [5] subclause 4.1	Normal
Test Frequencies as specified in TS 38.508-1 [5] subclause 4.3.1	(See Freq column)
Test Channel Bandwidths as specified in TS 38.508-1 [5] subclause 4.3.1	Lowest, Highest
Test SCS as specified in Table 5.3.5-1	Lowest, Highest

A-MPR test parameters for NS_04

				Downlink Configuration	Uplink Configuration	
Test ID	**Freq**			N/A for A-MPR testing	**Modulation (NOTE 2)**	**RB allocation (NOTE 1)**
1 (Note 3)	Low				DFT-s-OFDM PI/2 BPSK	Edge_1RB_Left
2 (Note 3, 5)	Table 6.2.3.4.1-2a - Table 6.2.3.4.1-2c				DFT-s-OFDM PI/2 BPSK	Edge_1RB_Left
3 (Note 3)	Table 6.2.3.4.1-2d - Table 6.2.3.4.1-2f				DFT-s-OFDM PI/2 BPSK	Edge_1RB_Left
4 (Note 3)	Low				DFT-s-OFDM PI/2 BPSK	Outer Full
5 (Note 3)	High				DFT-s-OFDM PI/2 BPSK	Edge_1RB_Right
6 (Note 3)	High				DFT-s-OFDM PI/2 BPSK	Outer Full
7 (Note 4)	Low				DFT-s-OFDM PI/2 BPSK	Edge_1RB_Left
8 (Note 4, 5)	Table 6.2.3.4.1-2a - Table 6.2.3.4.1-2c				DFT-s-OFDM PI/2 BPSK	Edge_1RB_Left
9 (Note 4)	Table 6.2.3.4.1-2d - Table 6.2.3.4.1-2f				DFT-s-OFDM PI/2 BPSK	Edge_1RB_Left
10 (Note 4)	Low				DFT-s-OFDM PI/2 BPSK	Outer Full
11 (Note 4)	High				DFT-s-OFDM PI/2 BPSK	Edge_1RB_Right
12 (Note 4)	High				DFT-s-OFDM PI/2 BPSK	Outer Full
13	Low				DFT-s-OFDM QPSK	Edge_1RB_Left
14 (Note 5)	Table 6.2.3.4.1-2a - Table 6.2.3.4.1-2c				DFT-s-OFDM QPSK	Edge_1RB_Left
15	Table 6.2.3.4.1-2d - Table 6.2.3.4.1-2f				DFT-s-OFDM QPSK	Edge_1RB_Left
16	Low				DFT-s-OFDM QPSK	Outer Full
17	High				DFT-s-OFDM QPSK	Edge_1RB_Right
18	High				DFT-s-OFDM QPSK	Outer Full
19	Low				DFT-s-OFDM 16 QAM	Edge_1RB_Left
20 (Note 5)	Table 6.2.3.4.1-2a - Table 6.2.3.4.1-2c				DFT-s-OFDM 16 QAM	Edge_1RB_Left
21	Table 6.2.3.4.1-2d - Table 6.2.3.4.1-2f				DFT-s-OFDM 16 QAM	Edge_1RB_Left
22	Low				DFT-s-OFDM 16 QAM	Outer Full
23	High				DFT-s-OFDM 16 QAM	Edge_1RB_Right
24	High				DFT-s-OFDM 16 QAM	Outer Full
25	Low				DFT-s-OFDM 64 QAM	Edge_1RB_Left
26 (Note 5)	Table 6.2.3.4.1-2a - Table 6.2.3.4.1-2c				DFT-s-OFDM 64 QAM	Edge_1RB_Left
27	Table 6.2.3.4.1-2d - Table 6.2.3.4.1-2f				DFT-s-OFDM 64 QAM	Edge_1RB_Left
28	Low				DFT-s-OFDM 64 QAM	Outer Full
29	High				DFT-s-OFDM 64 QAM	Edge_1RB_Right
30	High				DFT-s-OFDM 64 QAM	Outer Full
31	Low				DFT-s-OFDM 256 QAM	Edge_1RB_Left
32 (Note 5)	Table 6.2.3.4.1-2a - Table 6.2.3.4.1-2c				DFT-s-OFDM 256 QAM	Edge_1RB_Left
33	Table 6.2.3.4.1-2d - Table 6.2.3.4.1-2f				DFT-s-OFDM 256 QAM	Edge_1RB_Left
34	Low				DFT-s-OFDM 256 QAM	Outer Full
35	High				DFT-s-OFDM 256 QAM	Edge_1RB_Right
36	High				DFT-s-OFDM 256 QAM	Outer Full
37	Low				CP-OFDM QPSK	Edge_1RB_Left
38 (Note 5)	Table 6.2.3.4.1-2a - Table 6.2.3.4.1-2c				CP-OFDM QPSK	Edge_1RB_Left
39	Table 6.2.3.4.1-2d - Table 6.2.3.4.1-2f				CP-OFDM QPSK	Edge_1RB_Left
40	Low				CP-OFDM QPSK	Outer Full
41	High				CP-OFDM QPSK	Edge_1RB_Right
42	High				CP-OFDM QPSK	Outer Full
43	Low				CP-OFDM 16 QAM	Edge_1RB_Left
44 (Note 5)	Table 6.2.3.4.1-2a - Table 6.2.3.4.1-2c				CP-OFDM 16 QAM	Edge_1RB_Left
45	Table 6.2.3.4.1-2d - Table 6.2.3.4.1-2f				CP-OFDM 16 QAM	Edge_1RB_Left
46	Low				CP-OFDM 16 QAM	Outer Full
47	High				CP-OFDM 16 QAM	Edge_1RB_Right
48	High				CP-OFDM 16 QAM	Outer Full
49	Low				CP-OFDM 64 QAM	Edge_1RB_Left
50 (Note 5)	Table 6.2.3.4.1-2a - Table 6.2.3.4.1-2c				CP-OFDM 64 QAM	Edge_1RB_Left
51	Table 6.2.3.4.1-2d - Table 6.2.3.4.1-2f				CP-OFDM 64 QAM	Edge_1RB_Left
52	Low				CP-OFDM 64 QAM	Outer Full
53	High				CP-OFDM 64 QAM	Edge_1RB_Right
54	High				CP-OFDM 64 QAM	Outer Full
55	Low				CP-OFDM 256 QAM	Edge_1RB_Left

56 (Note 5)	Table 6.2.3.4.1-2a - Table 6.2.3.4.1-2c		CP-OFDM 256 QAM	Edge_1RB_Left
57	Table 6.2.3.4.1-2d - Table 6.2.3.4.1-2f		CP-OFDM 256 QAM	Edge_1RB_Left
58	Low		CP-OFDM 256 QAM	Outer Full
59	High		CP-OFDM 256 QAM	Edge_1RB_Right
60	High		CP-OFDM 256 QAM	Outer Full

NOTE 1: The specific configuration of each RB allocation is defined in Table 6.1-1.
NOTE 2: DFT-s-OFDM PI/2 BPSK test applies only for UEs which supports half Pi BPSK in FR1.
NOTE 3: UE operating in TDD mode with Pi/2 BPSK modulation and UE indicates support for UE capability *powerBoosting-pi2BPSK* and the IE *powerBoostPi2BPSK* is set to 1 for band n41.
NOTE 4: UE operating in FDD mode, or in TDD mode in bands other than n41, or in TDD mode the IE *powerBoostPi2BPSK* is set to 0 for bands n41.
NOTE 5: Only applicable for 10 MHz and 15 MHz channel bandwidth

Table 6.2D.3.4.1-2: Test Configuration table for NS_35

Initial Conditions				
Test Environment as specified in TS 38.508-1 [5] subclause 4.1			Normal	
Test Frequencies as specified in TS 38.508-1 [5] subclause 4.3.1			Low range, High range	
Test Channel Bandwidths as specified in TS 38.508-1 [5] subclause 4.3.1			Lowest, Highest	
Test SCS as specified in Table 5.3.5-1			Lowest, Highest	
A-MPR test parameters for NS_35				
Test ID	Freq	**Downlink Configuration**	**Uplink Configuration**	
			Modulation	**RB allocation (NOTE 1)**
1	Low	N/A	CP-OFDM QPSK	Edge_1RB_Left
2	High		CP-OFDM QPSK	Edge_1RB_Right
3	Default		CP-OFDM QPSK	Outer Full
4	Low		CP-OFDM 16 QAM	Edge_1RB_Left
5	High		CP-OFDM 16 QAM	Edge_1RB_Right
6	Default		CP-OFDM 16 QAM	Outer Full
7	Low		CP-OFDM 64 QAM	Edge_1RB_Left
8	High		CP-OFDM 64 QAM	Edge_1RB_Right
9	Default		CP-OFDM 64 QAM	Outer Full
10	Low		CP-OFDM 256 QAM	Edge_1RB_Left
11	High		CP-OFDM 256 QAM	Edge_1RB_Right
12	Default		CP-OFDM 256 QAM	Outer Full

NOTE 1: The specific configuration of each RB allocation is defined in Table 6.1-1.

Table 6.2D.3.4.1-3: Test Configuration table for NS_05

Initial Conditions	
Test Environment as specified in TS 38.508-1 [5] subclause 4.1	Normal
Test Frequencies as specified in TS 38.508-1 [5] subclause 4.3.1	Use uplink carrier center frequency (Fc) as specified in test parameters
Test Channel Bandwidths as specified in TS 38.508-1 [5] subclause 4.3.1	5 MHz, 10 MHz, 15 MHz, 20 MHz
Test SCS as specified in Table 5.3.5-1	Lowest, Highest unless otherwise specified in test parameters.

A-MPR test parameters for NS_05

Test ID	Fc (MHz)	ChBw (MHz)	SCS (kHz)		A-MPR		Uplink Configuration			
							Modulation (NOTE 2)	RB allocation (Note 1)		
								SCS 15 kHz	SCS 30 kHz	SCS 60 kHz
1	1922.5	5	15		A3		QPSK	Outer_Full		
2	1925	10	Default		A1		QPSK	Outer_Full		
3	1925	10	Default		A7		QPSK	42@10	18@5	8@3
4	1925	10	Default		A2		QPSK	6@40	3@20	1@10
5	1935	10	Default		A4		QPSK	Outer_Full		
6	1927.5	15	Default		A1		QPSK	Outer_Full		
7	1927.5	15	Default		A7		QPSK	60@19	28@10	12@5
8	1927.5	15	Default		A2		QPSK	6@56	3@28	1@14
9	1932.5	15	Default		A1		QPSK	Outer_Full		
10	1932.5	15	Default		A2		QPSK	6@68	3@34	1@17
11	1942.5	15	Default		A5		QPSK	Outer_Full		
12	1930	20	Default		A1		QPSK	Outer_Full		
13	1930	20	Default		A7		QPSK	78@28	37@14	17@7
14	1930	20	Default		A2		QPSK	6@76	3@38	1@19
15	1950	20	Default		A6		QPSK	Outer_Full		
16	1922.5	5	15		A3		16 QAM	Outer_Full		
17	1925	10	Default		A1		16 QAM	Outer_Full		
18	1925	10	Default		A7		16 QAM	42@10	18@5	8@3
19	1925	10	Default		A2		16 QAM	6@40	3@20	1@10
20	1935	10	Default		A4		16 QAM	Outer_Full		
21	1927.5	15	Default		A1		16 QAM	Outer_Full		
22	1927.5	15	Default		A7		16 QAM	60@19	28@10	12@5
23	1927.5	15	Default	**Downlink**	A2		16 QAM	6@56	3@28	1@14
24	1932.5	15	Default	**Config.**	A1		16 QAM	Outer_Full		
25	1932.5	15	Default		A2		16 QAM	6@68	3@34	1@17
26	1942.5	15	Default		A5		16 QAM	Outer_Full		
27	1930	20	Default		A1		16 QAM	Outer_Full		
28	1930	20	Default		A7		16 QAM	78@28	37@14	17@7
29	1930	20	Default		A2		16 QAM	6@76	3@38	1@19
30	1950	20	Default		A6		16 QAM	Outer_Full		
31	1922.5	5	15		A3		64 QAM	Outer_Full		
32	1925	10	Default		A1		64 QAM	Outer_Full		
33	1925	10	Default		A7		64 QAM	42@10	18@5	8@3
34	1925	10	Default		A2		64 QAM	6@40	3@20	1@10
35	1927.5	15	Default		A1		64 QAM	Outer_Full		
36	1927.5	15	Default		A7		64 QAM	60@19	28@10	12@5
37	1927.5	15	Default		A2		64 QAM	6@56	3@28	1@14
38	1932.5	15	Default		A1		64 QAM	Outer_Full		
39	1932.5	15	Default		A2		64 QAM	6@68	3@34	1@17
40	1930	20	Default		A1		64 QAM	Outer_Full		
41	1930	20	Default		A7		64 QAM	78@28	37@14	17@7
42	1930	20	Default		A2		64 QAM	6@76	3@38	1@19
43	1922.5	5	15		A3		256 QAM	Outer_Full		
44	1925	10	Default		A1		256 QAM	Outer_Full		
45	1925	10	Default		A7		256 QAM	42@10	18@5	8@3
46	1927.5	15	Default		A1		256 QAM	Outer_Full		
47	1927.5	15	Default		A7		256 QAM	60@19	28@10	12@5
48	1932.5	15	Default		A1		256 QAM	Outer_Full		
49	1930	20	Default		A1		256 QAM	Outer_Full		
50	1930	20	Default		A7		256 QAM	78@28	37@14	17@7

CP-OFDM

NOTE 1: The specific configuration of each RB allocation is defined in Table 6.1-1 unless otherwise stated in this table.
NOTE 2: DFT-s-OFDM PI/2 BPSK test applies only for UEs which supports half Pi BPSK in FR1.

Table 6.2D.3.4.1-4: Test Configuration table for NS_05U

Initial Conditions	
Test Environment as specified in TS 38.508-1 [5] subclause 4.1	Normal
Test Frequencies as specified in TS 38.508-1 [5] subclause 4.3.1	Use uplink carrier center frequency (Fc) as specified in test parameters
Test Channel Bandwidths as specified in TS 38.508-1 [5] subclause 4.3.1	5 MHz, 10 MHz, 15 MHz, 20 MHz
Test SCS as specified in Table 5.3.5-1	Lowest, Highest unless otherwise specified in test parameters.

A-MPR test parameters for NS_05U

Test ID	Fc (MHz)	ChBw (MHz)	SCS (kHz)		A-MPR		Uplink Configuration			
							Modulation (NOTE 2)	RB allocation (Note 1)		
								SCS 15 kHz	SCS 30 kHz	SCS 60 kHz
1	1922.5	5	15		A3		QPSK	Outer_Full		
2	1925	10	Default		A1		QPSK	Outer_Full		
3	1925	10	Default		A7		QPSK	42@10	18@5	8@3
4	1925	10	Default		A2		QPSK	6@40	3@20	1@10
5	1935	10	Default		A4		QPSK	Outer_Full		
6	1927.5	15	Default		A1		QPSK	Outer_Full		
7	1927.5	15	Default		A7		QPSK	60@19	28@10	12@5
8	1927.5	15	Default		A2		QPSK	6@56	3@28	1@14
9	1932.5	15	Default		A1		QPSK	Outer_Full		
10	1932.5	15	Default		A2		QPSK	6@68	3@34	1@17
11	1942.5	15	Default		A5		QPSK	Outer_Full		
12	1930	20	Default		A1		QPSK	Outer_Full		
13	1930	20	Default		A7		QPSK	78@28	37@14	17@7
14	1930	20	Default		A2		QPSK	6@76	3@38	1@19
15	1950	20	Default		A6		QPSK	Outer_Full		
16	1922.5	5	15		A3		16 QAM	Outer_Full		
17	1925	10	Default		A1		16 QAM	Outer_Full		
18	1925	10	Default		A7		16 QAM	42@10	18@5	8@3
19	1925	10	Default		A2		16 QAM	6@40	3@20	1@10
20	1935	10	Default		A4		16 QAM	Outer_Full		
21	1927.5	15	Default		A1		16 QAM	Outer_Full		
22	1927.5	15	Default		A7		16 QAM	60@19	28@10	12@5
23	1927.5	15	Default		A2		16 QAM	6@56	3@28	1@14
24	1932.5	15	Default	**Downlink**	A1		16 QAM	Outer_Full		
25	1932.5	15	Default	**Config.**	A2	CP-OFDM	16 QAM	6@68	3@34	1@17
26	1942.5	15	Default		A5		16 QAM	Outer_Full		
27	1930	20	Default		A1		16 QAM	Outer_Full		
28	1930	20	Default		A7		16 QAM	78@28	37@14	17@7
29	1930	20	Default		A2		16 QAM	6@76	3@38	1@19
30	1950	20	Default		A6		16 QAM	Outer_Full		
31	1922.5	5	15		A3		64 QAM	Outer_Full		
32	1925	10	Default		A1		64 QAM	Outer_Full		
33	1925	10	Default		A7		64 QAM	42@10	18@5	8@3
34	1925	10	Default		A2		64 QAM	6@40	3@20	1@10
35	1935	10	Default		A4		64 QAM	Outer_Full		
36	1927.5	15	Default		A1		64 QAM	Outer_Full		
37	1927.5	15	Default		A7		64 QAM	60@19	28@10	12@5
38	1927.5	15	Default		A2		64 QAM	6@56	3@28	1@14
39	1932.5	15	Default		A1		64 QAM	Outer_Full		
40	1932.5	15	Default		A2		64 QAM	6@68	3@34	1@17
41	1942.5	15	Default		A5		64 QAM	Outer_Full		
42	1930	20	Default		A1		64 QAM	Outer_Full		
43	1930	20	Default		A7		64 QAM	78@28	37@14	17@7
44	1930	20	Default		A2		64 QAM	6@76	3@38	1@19
45	1950	20	Default		A6		64 QAM	Outer_Full		
46	1922.5	5	15		A3		256 QAM	Outer_Full		
47	1925	10	Default		A1		256 QAM	Outer_Full		
48	1925	10	Default		A7		256 QAM	42@10	18@5	8@3
49	1935	10	Default		A4		256 QAM	Outer_Full		
50	1927.5	15	Default		A1		256 QAM	Outer_Full		
51	1927.5	15	Default		A7		256 QAM	60@19	28@10	12@5
52	1932.5	15	Default		A1		256 QAM	Outer_Full		

53	1942.5	15	Default		A5		256 QAM	Outer_Full		
54	1930	20	Default		A1		256 QAM	Outer_Full		
55	1930	20	Default		A7		256 QAM	78@28	37@14	17@7
56	1950	20	Default		A6		256 QAM	Outer_Full		
NOTE 1: The specific configuration of each RB allocation is defined in Table 6.1-1 unless otherwise stated in this table. NOTE 2: DFT-s-OFDM PI/2 BPSK test applies only for UEs which supports half Pi BPSK in FR1.										

Table 6.2D.3.4.1-5: Test Configuration table for NS_48

Initial Conditions										
Test Environment as specified in TS 38.508-1 [5] subclause 4.1							Normal			
Test Frequencies as specified in TS 38.508-1 [5] subclause 4.3.1							Low range, High range			
Test Channel Bandwidths as specified in TS 38.508-1 [5] subclause 4.3.1							25 MHz, 30MHz, 40MHz, 50MHz			
Test SCS as specified in Table 5.3.5-1							Lowest, Highest			
A-MPR test parameters for NS_48										
Test ID	**F_c (MHz)**	**Ch BW (MHz)**	**SCS (kHz)**	**Downlink Configuration**	**Uplink Configuration**					
						Modulation (Note 2)	**RB allocation (Note 1)**			
							SCS 15 kHz	**SCS 30 kHz**	**SCS 60 kHz**	
1	Default	25	Default		CP-OFDM	QPSK	Outer_Full (A3)			
2	Default	25	Default			QPSK	Edge_1RB_Right (A3)			
3	Default	30	Default			QPSK	Outer_Full (A3)			
4	Default	30	Default			QPSK	Edge_1RB_Right (A5)			
5	Default	40	Default			QPSK	16@0 (A2)	8@0 (A2)	4@0 (A2)	
6	Default	40	Default			QPSK	95@0 (A3)	48@0 (A3)	24@0 (A3)	
7	Default	40	Default			QPSK	152@0 (A4)	76@0 (A4)	38@0 (A4)	
8	Default	40	Default			QPSK	192@0 (A2)	96@0 (A2)	48@0 (A2)	
9	Default	40	Default			QPSK	5@187 (A3)	2@94 (A3)	1@47 (A3)	
10	Default	40	Default			QPSK	Outer_Full (A1)			
11	Default	50	Default			QPSK	34@0 (A2)	18@0 (A2)	9@0 (A2)	
12	Default	50	Default			QPSK	115@0 (A4)	58@0 (A4)	29@0 (A4)	
13	Default	50	Default			QPSK	228@0 (A2)	114@0 (A2)	57@0 (A2)	
14	Default	50	Default			QPSK	5@223 (A5)	2@112 (A5)	1@56 (A5)	
15	Default	50	Default			QPSK	Outer_Full (A1)			
16	Default	25	Default			256 QAM	Outer_Full (A3)			
17	Default	25	Default			256 QAM	Edge_1RB_Right (A3)			
18	Default	30	Default			256 QAM	Outer_Full (A3)			
19	Default	30	Default			256 QAM	Edge_1RB_Right (A5)			
20	Default	40	Default			256 QAM	16@0 (A2)	8@0 (A2)	4@0 (A2)	
21	Default	40	Default			256 QAM	95@0 (A3)	48@0 (A3)	24@0 (A3)	
22	Default	40	Default			256 QAM	152@0 (A4)	76@0 (A4)	38@0 (A4)	
23	Default	40	Default			256 QAM	192@0 (A2)	96@0 (A2)	48@0 (A2)	
24	Default	40	Default			256 QAM	5@187 (A3)	2@94 (A3)	1@47 (A3)	
25	Default	40	Default			256 QAM	Outer_Full (A1)			
26	Default	50	Default			256 QAM	34@0 (A2)	18@0 (A2)	9@0 (A2)	
27	Default	50	Default			256 QAM	115@0 (A4)	58@0 (A4)	29@0 (A4)	
28	Default	50	Default			256 QAM	228@0 (A2)	114@0 (A2)	57@0 (A2)	
29	Default	50	Default			256 QAM	5@223 (A5)	2@112 (A5)	1@56 (A5)	
30	Default	50	Default			256 QAM	Outer_Full (A1)			
NOTE 1: The specific configuration of each RB allocation is defined in Table 6.1-1 unless otherwise stated in this table.										

Table 6.2D.3.4.1-6: Test Configuration table for NS_49

Initial Conditions	
Test Environment as specified in TS 38.508-1 [5] subclause 4.1	Normal
Test Frequencies as specified in TS 38.508-1 [5] subclause 4.3.1	Low range, High range
Test Channel Bandwidths as specified in TS 38.508-1 [5] subclause 4.3.1	25 MHz, 30MHz, 40MHz, 50MHz
Test SCS as specified in Table 5.3.5-1	Lowest, Highest

A-MPR test parameters for NS_49									
Test ID	F_c (MHz)	Ch BW (MHz)	SCS (kHz)	Downlink Configuration	Uplink Configuration				
					Modulation (Note 2)		RB allocation (Note 1)		
							SCS 15 kHz	SCS 30 kHz	SCS 60 kHz
1	Default	25	Default		CP-OFDM	QPSK	Outer_Full (A3)		
2	Default	25	Default			QPSK	Edge_1RB_Right (A3)		
3	Default	25	Default			QPSK	Edge_1RB_Left (A3)		
4	Default	30	Default			QPSK	20@0 (A1)	10@0 (A1)	5@0 (A1)
5	Default	30	Default			QPSK	36@0 (A5)	18@0 (A5)	9@0 (A5)
6	Default	30	Default			QPSK	80@0 (A3)	40@0 (A3)	20@0 (A3)
7	Default	30	Default			QPSK	120@0 (A4)	60@0 (A4)	30@0 (A4)
8	Default	30	Default			QPSK	Outer_Full (A2)		
9	Default	30	Default			QPSK	Edge_1RB_Right (A5)		
10	Default	40	Default			QPSK	40@0 (A1)	20@0 (A1)	10@0 (A1)
11	Default	40	Default			QPSK	5@53 (A5)	2@27 (A5)	1@14 (A5)
12	Default	40	Default			QPSK	100@0 (A4)	50@0 (A4)	25@0 (A4)
13	Default	40	Default			QPSK	159@33 (A2)	79@17 (A2)	39@9 (A2)
14	Default	40	Default			QPSK	5@187 (A5)	2@94 (A5)	1@47 (A5)
15	Default	40	Default			QPSK	192@0 (A1)	96@0 (A1)	48@0 (A1)
16	Default	40	Default			QPSK	Outer_Full (A1)		
17	Default	50	Default			QPSK	5@75 (A5)	2@38 (A5)	1@19 (A5)
18	Default	50	Default			QPSK	5@215 (A5)	2@108 (A5)	1@54 (A5)
19	Default	50	Default			QPSK	175@45 (A2)	87@23 (A2)	43@12 (A2)
20	Default	50	Default			QPSK	220@0 (A1)	110@0 (A1)	55@0 (A1)
21	Default	50	Default			QPSK	Outer_Full (A1)		
22	Default	25	Default			256 QAM	Outer_Full (A3)		
23	Default	25	Default			256 QAM	Edge_1RB_Right (A3)		
24	Default	25	Default			256 QAM	Edge_1RB_Left (A3)		
25	Default	30	Default			256 QAM	20@0 (A1)	10@0 (A1)	5@0 (A1)
26	Default	30	Default			256 QAM	36@0 (A5)	18@0 (A5)	9@0 (A5)
27	Default	30	Default			256 QAM	80@0 (A3)	40@0 (A3)	20@0 (A3)
28	Default	30	Default			256 QAM	120@0 (A4)	60@0 (A4)	30@0 (A4)
29	Default	30	Default			256 QAM	Outer_Full (A2)		
30	Default	30	Default			256 QAM	Edge_1RB_Right (A5)		
31	Default	40	Default			256 QAM	40@0 (A1)	20@0 (A1)	10@0 (A1)
32	Default	40	Default			256 QAM	5@53 (A5)	2@27 (A5)	1@14 (A5)
33	Default	40	Default			256 QAM	100@0 (A4)	50@0 (A4)	25@0 (A4)
34	Default	40	Default			256 QAM	159@33 (A2)	79@17 (A2)	39@9 (A2)
35	Default	40	Default			256 QAM	5@187 (A5)	2@94 (A5)	1@47 (A5)
36	Default	40	Default			256 QAM	192@0 (A1)	96@0 (A1)	48@0 (A1)
37	Default	40	Default			256 QAM	Outer_Full (A1)		
38	Default	50	Default			256 QAM	5@75 (A5)	2@38 (A5)	1@19 (A5)
39	Default	50	Default			256 QAM	5@215 (A5)	2@108 (A5)	1@54 (A5)
40	Default	50	Default			256 QAM	175@45 (A2)	87@23 (A2)	43@12 (A2)
41	Default	50	Default			256 QAM	220@0 (A1)	110@0 (A1)	55@0 (A1)
42	Default	50	Default			256 QAM	Outer_Full (A1)		

NOTE 1: The specific configuration of each RB allocation is defined in Table 6.1-1 unless otherwise stated in this table.

Table 6.2D.3.4.1-7: Test Configuration table for NS_03, NS_03U and NS_100

Initial Conditions							
Test Environment as specified in TS 38.508-1 [5] subclause 4.1							Normal
Test Frequencies as specified in TS 38.508-1 [5] subclause 4.3.1							Low range, High range
Test Channel Bandwidths as specified in TS 38.508-1 [5] subclause 4.3.1							Lowest, Highest
Test SCS as specified in Table 5.3.5-1							Lowest, Highest
A-MPR test parameters for NS_03, NS_03U and NS_100							
Test ID	**Freq**	**ChBw**	**SCS**	**Downlink Configuration**	**Uplink Configuration**		
					Modulation		**RB allocation (Note 1)**
1	Low	Default	Default	N/A for A-MPR test cases	CP- OFDM	QPSK	Edge_1RB_Left
2	High	Default	Default			QPSK	Edge_1RB_Right
3	Default	Default	Default			QPSK	Outer_Full
4	Low	Default	Default			16 QAM	Edge_1RB_Left
5	High	Default	Default			16 QAM	Edge_1RB_Right
6	Default	Default	Default			16 QAM	Outer_Full
7	Low	Default	Default			64 QAM	Edge_1RB_Left
8	High	Default	Default			64 QAM	Edge_1RB_Right
9	Default	Default	Default			64 QAM	Outer_Full
10	Low	Default	Default			256 QAM	Edge_1RB_Left
11	High	Default	Default			256 QAM	Edge_1RB_Right
12	Default	Default	Default			256 QAM	Outer_Full
NOTE 1: The specific configuration of each RB allocation is defined in Table 6.1-1 unless otherwise stated in this table.							

Table 6.2D.3.4.1-8: Test Configuration table for NS_46

Initial Conditions									
Test Environment as specified in TS 38.508-1 [5] subclause 4.1					Normal				
Test Frequencies as specified in TS 38.508-1 [5] subclause 4.3.1					High range				
Test Channel Bandwidths as specified in TS 38.508-1 [5] subclause 4.3.1					15MHz, 20MHz, 25 MHz, 50MHz				
Test SCS as specified in Table 5.3.5-1					Lowest, Highest				
A-MPR test parameters for NS_46									
Test ID	**F_c (MHz)**	**Ch BW (MHz)**	**SCS (kHz)**	**Downlink Configuration**	**Uplink Configuration**				
					Modulation (Note 2)		**RB allocation (Note 1)**		
							SCS 15 kHz	**SCS 30 kHz**	**SCS 60 kHz**
1	Default	25	Default		CP-OFDM	QPSK	90@43 (A3)	45@20 (A3)	23@8 (A3)
2	Default	25	Default			256QAM	90@43 (A3)	45@20 (A3)	23@8 (A3)
3	Default	50	Default			QPSK	Edge_1RB_Left (A4)		
4	Default	50	Default			64QAM	Edge_1RB_Left (A4)		
5	Default	50	Default			QPSK	120@0 (A5)	60@0 (A5)	30@0 (A5)
6	Default	50	Default			64QAM	120@0 (A5)	60@0 (A5)	30@0 (A5)
7	Default	50	Default			QPSK	176@0 (A6)	88@0 (A6)	44@0 (A6)
8	Default	50	Default			64QAM	176@0 (A6)	88@0 (A6)	44@0 (A6)
9	Default	50	Default			QPSK	220@0 (A7)	110@0 (A7)	55@0 (A7)
10	Default	50	Default			256QAM	220@0 (A7)	110@0 (A7)	55@0 (A7)
11	Default	50	Default			QPSK	Outer_Full (A8)		
12	Default	50	Default			256QAM	Outer_Full (A8)		
NOTE 1: The specific configuration of each RB allocation is defined in Table 6.1-1 unless otherwise stated in this table.									

Table 6.2D.3.4.1-9: Test Configuration table for NS_21

Initial Conditions								
Test Environment as specified in TS 38.508-1 [5] subclause 4.1							Normal	
Test Frequencies as specified in TS 38.508-1 [5] subclause 4.3.1							Low range, High range	
Test Channel Bandwidths as specified in TS 38.508-1 [5] subclause 4.3.1							Lowest, Highest	
Test SCS as specified in Table 5.3.5-1							Lowest, Highest	
A-MPR test parameters for NS_21								
Test ID	**Freq**	**ChBw**	**SCS**	**Downlink Configuration**	**Uplink Configuration**			
					Modulation (Note 2)		**RB allocation (Note 1)**	
							SCS 15 kHz	**SCS 30 kHz**
1	Low	Default	Default	N/A	CP-DFT-s-OFDM PI/2 BPSK	QPSK	Edge_1RB_Left	
2	High	Default	Default			QPSK	Edge_1RB_Right	
3	Default	Default	Default			QPSK	Outer_Full	
4	Default	10 MHz	Default			QPSK	4@0	2@0
5	Default	10 MHz	Default			QPSK	4@48	2@22
6	Low	Default	Default			16 QAM	Edge_1RB_Left	
7	High	Default	Default			16 QAM	Edge_1RB_Right	
8	Default	Default	Default			16 QAM	Outer_Full	
9	Default	10 MHz	Default			16 QAM	4@0	2@0
10	Default	10 MHz	Default			16 QAM	4@48	2@22
11	Low	Default	Default			64 QAM	Edge_1RB_Left	
12	High	Default	Default			64 QAM	Edge_1RB_Right	
13	Default	Default	Default			64 QAM	Outer_Full	
14	Default	10 MHz	Default			64 QAM	4@0	2@0
15	Default	10 MHz	Default			64 QAM	4@48	2@22
16	Low	Default	Default			256 QAM	Edge_1RB_Left	
17	High	Default	Default			256 QAM	Edge_1RB_Right	
18	Default	Default	Default			256 QAM	Outer_Full	
19	Default	10 MHz	Default			256 QAM	4@0	2@0
20	Default	10 MHz	Default			256 QAM	4@48	2@22
NOTE 1: The specific configuration of each RB allocation is defined in Table 6.1-1 unless otherwise stated in this table. NOTE 2: DFT-s-OFDM PI/2 BPSK test applies only for UEs which supports half Pi BPSK in FR1.								

Table 6.2D.3.4.1-10: Test Configuration table for NS_44

Initial Conditions									
Test Environment as specified in TS 38.508-1 [5] subclause 4.1						Normal			
Test Frequencies as specified in TS 38.508-1 [5] subclause 4.3.1						Defined for each test ID			
Test Channel Bandwidths as specified in TS 38.508-1 [5] subclause 4.3.1						Defined for each test ID			
Test SCS as specified in Table 5.3.5-1						Lowest, Highest			
A-MPR test parameters for NS_44									
Test ID	**F_c (MHz)**	**Ch BW (MHz)**	**SCS (kHz)**	**Downlink Configuration**	**Uplink Configuration**				
					Modulation		**RB allocation (Note 1)**		
							SCS 15 kHz	**SCS 30 kHz**	**SCS 60 kHz**
1	2602.5	25	Default	N/A	CP-OFDM	64 QAM	100@0 (A3)	50@0 (A3)	25@0 (A3)
2	2602.5	25	Default			64 QAM	39@94 (A3)	19@46 (A3)	9@22 (A3)
3	2602.5	25	Default			64 QAM	Outer_Full (A6)		
4	2602.5	25	Default			256 QAM	100@0 (A3)	50@0 (A3)	25@0 (A3)
5	2602.5	25	Default			256 QAM	39@94 (A3)	19@46 (A3)	9@22 (A3)
6	2602.5	25	Default			256 QAM	Outer_Full (A6)		
7	2600	30	Default			64 QAM	120@0 (A3)	60@0 (A3)	30@0 (A3)
8	2600	30	Default			64 QAM	69@91 (A5)	34@44 (A5)	17@21 (A5)
9	2600	30	Default			64 QAM	Outer_Full (A5)		
10	2600	30	Default			256 QAM	120@0 (A3)	60@0 (A3)	30@0 (A3)
11	2600	30	Default			256 QAM	69@91 (A5)	34@44 (A5)	17@21 (A5)
12	2600	30	Default			256 QAM	Outer_Full (A5)		
13	2595	40	Default			64 QAM	16@0 (A1)	8@0 (A2)	4@0 (A2)
14	2595	40	Default			64 QAM	80@0 (A2)	40@0 (A2)	20@0 (A2)
15	2595	40	Default			64 QAM	130@0 (A3)	65@0 (A3)	33@0 (A3)
16	2595	40	Default			64 QAM	180@0 (A4)	90@0 (A4)	45@0 (A4)
17	2595	40	Default			64 QAM	Outer_Full (A5)		
18	2595	40	Default			256 QAM	16@0 (A2)	8@0 (A2)	4@0 (A2)
19	2595	40	Default			256 QAM	80@0 (A2)	40@0 (A2)	20@0 (A2)
20	2595	40	Default			256 QAM	130@0 (A3)	65@0 (A3)	33@0 (A3)
21	2595	40	Default			256 QAM	180@0 (A4)	90@0 (A4)	45@0 (A4)
22	2595	40	Default			256 QAM	Outer_Full (A5)		
NOTE 1: The specific configuration of each RB allocation is defined in Table 6.1-1 unless otherwise stated in this table.									

Table 6.2D.3.4.1-11: Test Configuration table for NS_27

Initial Conditions								
Test Environment as specified in TS 38.508-1 [5] subclause 4.1					Normal			
Test Frequencies					Refer to uplink carrier centre frequency (F_c) in test parameters. Associated parameters defined in Table 6.2D.3.4.1-9a and 6.2D.3.4.1-9b.			
Test Channel Bandwidths as specified in TS 38.508-1 [5] subclause 4.3.1					Refer to test parameters (15, 20, 40 MHz)			
Test SCS as specified in Table 5.3.5-1					Lowest, Highest (Note 3)			
A-MPR test parameters for NS_27								
Test ID	**F_c (MHz)**	**Ch BW (MHz)**	**SCS (kHz)**	**Downlink Configuration**	**Uplink Configuration**			
					Modulation	**RB allocation (Note 1)**		
						SCS 15 kHz	**SCS 30 kHz**	**SCS 60 kHz**
1	3557.52	15	Default		QPSK	Edge_1RB_Left (A3)		
2	3557.52	15	Default		QPSK	Outer_Full (A3)		
3	3692.49	15	Default		QPSK	Edge_1RB_Right (A3)		
4	3692.49	15	Default		QPSK	Outer_Full (A3)		
5	3562.5	15	Default		QPSK	Edge_1RB_Left (A4)		
6	3562.5	15	Default		QPSK	Outer_Full (2)		
7	3687.48	15	Default		QPSK	Edge_1RB_Right (A4)		
8	3687.48	15	Default		QPSK	Outer_Full (2)		
9	3560.01	20	Default		QPSK	Edge_1RB_Left (A5)		
10	3560.01	20	Default		QPSK	Outer_Full (A5)		
11	3690	20	Default		QPSK	Edge_1RB_Right (A5)		
12	3690	20	Default		QPSK	Outer_Full (A5)		
13	3570	20	Default		QPSK	Edge_1RB_Left (A6)		
14	3570	20	Default		QPSK	Outer_Full (2)		
15	3679.98	20	Default		QPSK	Edge_1RB_Right (A6)		
16	3679.98	20	Default		QPSK	Outer_Full (2)		
17	3570	40	Default	N/A	QPSK	Edge_1RB_Left (A7)		
18	3570	40	Default		QPSK	153@63 (A2)	72@32 (A2)	32@16 (A2)
19	3570	40	Default		QPSK	99@69 (A1)	49@34 (A1)	24@16 (A1)
20	3570	40	Default		QPSK	Edge_1RB_Right (A7)		
21	3679.98	40	Default		QPSK	Edge_1RB_Right (A7)		
22	3679.98	40	Default		QPSK	137@0 (A2)	68@0 (A2)	35@0 (A2)
23	3679.98	40	Default		QPSK	99@38 (A1)	49@18 (A1)	24@9 (A1)
24	3679.98	40	Default		QPSK	Edge_1RB_Left (A7)		
25	3600	40	Default		QPSK	Edge_1RB_Left (A8)		
26	3600	40	Default		QPSK	Outer_Full (4.5)		
27	3649.98	40	Default		QPSK	Edge_1RB_Right (A8)		
28	3649.98	40	Default		QPSK	Outer_Full (4.5)		
29	3557.52	15	Default		16 QAM	Edge_1RB_Left (A3)		

30	3557.52	15	Default
31	3692.49	15	Default
32	3692.49	15	Default
33	3562.5	15	Default
34	3562.5	15	Default
35	3687.48	15	Default
36	3687.48	15	Default
37	3560.01	20	Default
38	3560.01	20	Default
39	3690	20	Default
40	3690	20	Default
41	3570	20	Default
42	3570	20	Default
43	3679.98	20	Default
44	3679.98	20	Default
45	3570	40	Default
46	3570	40	Default
47	3570	40	Default
48	3570	40	Default
49	3679.98	40	Default
50	3679.98	40	Default
51	3679.98	40	Default
52	3679.98	40	Default
53	3600	40	Default
54	3600	40	Default
55	3649.98	40	Default
56	3649.98	40	Default
57	3557.52	15	Default
58	3557.52	15	Default
59	3692.49	15	Default
60	3692.49	15	Default
61	3562.5	15	Default
62	3562.5	15	Default
63	3687.48	15	Default
64	3687.48	15	Default
65	3560.01	20	Default
66	3560.01	20	Default
67	3690	20	Default

16 QAM	Outer_Full (A3)		
16 QAM	Edge_1RB_Right (A3)		
16 QAM	Outer_Full (A3)		
16 QAM	Edge_1RB_Left (A4)		
16 QAM	Outer_Full (2)		
16 QAM	Edge_1RB_Right (A4)		
16 QAM	Outer_Full (2)		
16 QAM	Edge_1RB_Left (A5)		
16 QAM	Outer_Full (A5)		
16 QAM	Edge_1RB_Right (A5)		
16 QAM	Outer_Full (A5)		
16 QAM	Edge_1RB_Left (A6)		
16 QAM	Outer_Full (2)		
16 QAM	Edge_1RB_Right (A6)		
16 QAM	Outer_Full (2)		
16 QAM	Edge_1RB_Left (A7)		
16 QAM	153@63 (A2)	72@32 (A2)	32@16 (A2)
16 QAM	99@69 (A1)	49@34 (A1)	24@16 (A1)
16 QAM	Edge_1RB_Right (A7)		
16 QAM	Edge_1RB_Right (A7)		
16 QAM	137@0 (A2)	68@0 (A2)	35@0 (A2)
16 QAM	99@38 (A1)	49@18 (A1)	24@9 (A1)
16 QAM	Edge_1RB_Left (A7)		
16 QAM	Edge_1RB_Left (A8)		
16 QAM	Outer_Full (4.5)		
16 QAM	Edge_1RB_Right (A8)		
16 QAM	Outer_Full (4.5)		
64 QAM	Edge_1RB_Left (A3)		
64 QAM	Outer_Full (A3)		
64 QAM	Edge_1RB_Right (A3)		
64 QAM	Outer_Full (A3)		
64 QAM	Edge_1RB_Left (A4)		
64 QAM	Outer_Full (2)		
64 QAM	Edge_1RB_Right (A4)		
64 QAM	Outer_Full (2)		
64 QAM	Edge_1RB_Left (A5)		
64 QAM	Outer_Full (A5)		
64 QAM	Edge_1RB_Right (A5)		

68	3690	20	Default
69	3570	20	Default
70	3570	20	Default
71	3679.98	20	Default
72	3679.98	20	Default
73	3570	40	Default
74	3570	40	Default
75	3570	40	Default
76	3570	40	Default
77	3679.98	40	Default
78	3679.98	40	Default
79	3679.98	40	Default
80	3679.98	40	Default
81	3600	40	Default
82	3600	40	Default
83	3649.98	40	Default
84	3649.98	40	Default
85	3557.52	15	Default
86	3557.52	15	Default
87	3692.49	15	Default
88	3692.49	15	Default
89	3562.5	15	Default
90	3562.5	15	Default
91	3687.48	15	Default
92	3687.48	15	Default
93	3560.01	20	Default
94	3560.01	20	Default
95	3690	20	Default
96	3690	20	Default
97	3570	20	Default
98	3570	20	Default
99	3679.98	20	Default
100	3679.98	20	Default
101	3570	40	Default
102	3570	40	Default
103	3570	40	Default
104	3570	40	Default
105	3679.98	40	Default

64 QAM	Outer_Full (A5)		
64 QAM	Edge_1RB_Left (A6)		
64 QAM	Outer_Full (2)		
64 QAM	Edge_1RB_Right (A6)		
64 QAM	Outer_Full (2)		
64 QAM	Edge_1RB_Left (A7)		
64 QAM	153@63 (A2)	72@32 (A2)	32@16 (A2)
64 QAM	99@69 (A1)	49@34 (A1)	24@16 (A1)
64 QAM	Edge_1RB_Right (A7)		
64 QAM	Edge_1RB_Right (A7)		
64 QAM	137@0 (A2)	68@0 (A2)	35@0 (A2)
64 QAM	99@38 (A1)	49@18 (A1)	24@9 (A1)
64 QAM	Edge_1RB_Left (A7)		
64 QAM	Edge_1RB_Left (A8)		
64 QAM	Outer_Full (4.5)		
64 QAM	Edge_1RB_Right (A8)		
64 QAM	Outer_Full (4.5)		
256 QAM	Edge_1RB_Left (A3)		
256 QAM	Outer_Full (A3)		
256 QAM	Edge_1RB_Right (A3)		
256 QAM	Outer_Full (A3)		
256 QAM	Edge_1RB_Left (A4)		
256 QAM	Outer_Full (2)		
256 QAM	Edge_1RB_Right (A4)		
256 QAM	Outer_Full (2)		
256 QAM	Edge_1RB_Left (A5)		
256 QAM	Outer_Full (A5)		
256 QAM	Edge_1RB_Right (A5)		
256 QAM	Outer_Full (A5)		
256 QAM	Edge_1RB_Left (A6)		
256 QAM	Outer_Full (2)		
256 QAM	Edge_1RB_Right (A6)		
256 QAM	Outer_Full (2)		
256 QAM	Edge_1RB_Left (A7)		
256 QAM	153@63 (A2)	72@32 (A2)	32@16 (A2)
256 QAM	99@69 (A1)	49@34 (A1)	24@16 (A1)
256 QAM	Edge_1RB_Right (A7)		
256 QAM	Edge_1RB_Right (A7)		

106	3679.98	40	Default		256 QAM	137@0 (A2)	68@0 (A2)	35@0 (A2)
107	3679.98	40	Default		256 QAM	99@38 (A1)	49@18 (A1)	24@9 (A1)
108	3679.98	40	Default		256 QAM	Edge_1RB_Left (A7)		
109	3600	40	Default		256 QAM	Edge_1RB_Left (A8)		
110	3600	40	Default		256 QAM	Outer_Full (4.5)		
111	3649.98	40	Default		256 QAM	Edge_1RB_Right (A8)		
112	3649.98	40	Default		256 QAM	Outer_Full (4.5)		

NOTE 1: The specific configuration of each RB allocation is defined in Table 6.1-1 unless otherwise stated in this table.
NOTE 2: DFT-s-OFDM PI/2 BPSK test applies only for UEs which supports half Pi BPSK in FR1.
NOTE 3: For FR1 bands where highest supported SCS is 60 kHz the highest tested SCS is limited to 30 kHz as carrier with SCS=60 kHz cannot be used as PCell.

Table 6.2D.3.4.1-11a: Test frequencies for NS_27 (SCS=15 kHz, ΔFRaster = 15kHz)

CBW [MHz]	*carrierBandwidth* [PRBs]	Carrier centre [MHz]	Carrier centre [ARFCN]	point A [MHz]	*absoluteFrequencyPointA* [ARFCN]	*offsetToCarrier* [Carrier PRBs]	SS block SCS [kHz]	GSCN	*absoluteFrequencySSB* [ARFCN]	k_{SSB}	Offset Carrier CORESET#0 [RBs] Note 2	CORESET#0 Index (Offset [RBs]) Note 1	offsetToPointA(SIB1) [PRBs] Note 1
15	79	3557.52	637168	3550.41	636694	0	30	7884	636960	2	0	0 (2)	2
		3562.5	637500	3555.39	637026			7888	637344	6	0	1 (6)	6
		3687.48	645832	3680.37	645358			7975	645696	2	2	1 (6)	8
		3692.49	646166	3685.38	645692			7978	645984	4	2	0 (2)	4
20	106	3560.01	637334	3550.47	636698			7885	637056	10	3	1 (6)	9
		3570	638000	3560.46	637364			7891	637632	4	0	0 (2)	2
		3679.98	645332	3670.44	644696			7968	645024	4	1	1 (6)	7
		3690	646000	3680.46	645364			7975	645696	8	1	1 (6)	7
40	216	3570	638000	3550.56	636704			7885	637056	4	3	1 (6)	9
		3600	640000	3580.56	638704			7905	638976	8	0	0 (2)	2
		3649.98	643332	3630.54	642036			7940	642336	0	3	0 (2)	5
		3679.98	645332	3660.54	644036			7961	644352	4	0	1 (6)	6

NOTE 1: The CORESET#0 Index and the associated CORESET#0 Offset refers to Table 13-1 in TS 38.213 [22]. The value of CORESET#0 Index is signalled in controlResourceSetZero (pdcch-ConfigSIB1) in the MIB. The offsetToPointA IE is expressed in units of resource blocks assuming 15 kHz subcarrier spacing for FR1 and 60 kHz subcarrier spacing for FR2.
NOTE 2: The parameter Offset Carrier CORESET#0 specifies the offset from the lowest subcarrier of the carrier and the lowest subcarrier of CORESET#0. It corresponds to the parameter $\Delta F_{OffsetCORESET\text{-}0\text{-}Carrier}$ in Annex C expressed in number of common RBs.

Table 6.2D.3.4.1-11b: Test frequencies for NS_27 (SCS=30 kHz, ΔFRaster = 30 kHz)

CBW [MHz]	*carrierBandwidth* [PRBs]	Carrier centre [MHz]	Carrier centre [ARFCN]	point A [MHz]	*absoluteFrequencyPointA* [ARFCN]	*offsetToCarrier* [Carrier PRBs]	SS block SCS [kHz]	GSCN	*absoluteFrequencySSB* [ARFCN]	k_{SSB}	Offset Carrier CORESET#0 [RBs] Note 2	CORESET#0 Index (Offset [RBs]) Note 1	offsetToPointA(SIB1) [PRBs] Note 1
15	38	3557.52	637168	3550.68	636712	0	30	7884	636960	8	0	0 (0)	0
		3562.5	637500	3555.66	637044			7888	637344	12	0	2 (2)	4
		3687.48	645832	3680.64	645376			7975	645696	8	0	3 (3)	6
		3692.49	646166	3685.65	645710			7978	645984	10	0	1 (1)	2
20	51	3560.01	637334	3550.83	636722			7885	637056	22	0	3 (3)	6
		3570	638000	3560.82	637388			7891	637632	4	0	0 (0)	0
		3679.98	645332	3670.8	644720			7968	645024	16	0	2 (2)	4
		3690	646000	3680.82	645388			7975	645696	20	0	2 (2)	4
40	106	3570	638000	3550.92	636728			7885	637056	16	0	3 (3)	6
		3600	640000	3580.92	638728			7905	638976	8	0	0 (0)	0
		3649.98	643332	3630.9	642060			7940	642336	12	0	1 (1)	2
		3679.98	645332	3660.9	644060			7961	644352	4	0	2 (2)	4

NOTE 1: The CORESET#0 Index and the associated CORESET#0 Offset refers to Table 13-1 in TS 38.213 [22]. The value of CORESET#0 Index is signalled in controlResourceSetZero (pdcch-ConfigSIB1) in the MIB. The offsetToPointA IE is expressed in units of resource blocks assuming 15 kHz subcarrier spacing for FR1 and 60 kHz subcarrier spacing for FR2.

NOTE 2: The parameter Offset Carrier CORESET#0 specifies the offset from the lowest subcarrier of the carrier and the lowest subcarrier of CORESET#0. It corresponds to the parameter $\Delta F_{OffsetCORESET\text{-}0\text{-}Carrier}$ in Annex C expressed in number of common RBs.

Editor's note: The following lines belong at the end of subclause 6.2D.3.4.1. As new tables are added to this section, these lines should always follow the tables

1. Connect the SS to the UE antenna connectors as shown in TS 38.508-1 [5] Annex A, Figure A.3.1.1.2 for TE diagram and section A.3.2 for UE diagram.
2. The parameter settings for the cell are set up according to TS 38.508-1 [5] subclause 4.4.3.
3. Downlink signals are initially set up according to Annex C.0, C.1, C.2 and uplink signals according Annex G.0, G.1, G.2 and G.3.0.
4. The UL Reference Measurement channels are set according to the applicable Table 6.2D.3.4.1-1.
5. Propagation conditions are set according to Annex B.0.
6. Ensure the UE is in state RRC_CONNECTED with generic procedure parameters Connectivity *NR*, Connected without release *On*, Test Mode *On* and Test Loop Function *On* according to TS 38.508-1 [5] clause 4.5. Message contents are defined in clause 6.2D.3.4.3.

6.2D.3.4.2 Test procedure

1. SS sends uplink scheduling information for each UL HARQ process via PDCCH DCI format 0_1 for C_RNTI to schedule the UL RMC according to Table 6.2D.3.4.1-1. Since the UE has no payload data to send, the UE transmits uplink MAC padding bits on the UL RMC. The PDCCH DCI format 0_1 is specified with the condition 2TX_UL_MIMO in 38.508-1 [5] subclause 4.3.6.1.1.2.
2. Send continuously uplink power control "up" commands in every uplink scheduling information to the UE. Allow at least 200ms starting from the first TPC command in this step for the UE to reach P_{UMAX} level.
3. Measure the sum of the mean power of the UE at each transmit antenna connector in the channel bandwidth of the radio access mode. The period of measurement shall be at least the continuous duration of 1ms over all active uplink slots and in the uplink symbols. For TDD slots only slots consisting of only UL symbols are under.
4. If UE supports ULFPTx, repeat test steps 1~3 with UL RMC according to relevant configuration tables. The PDCCH DCI format 0_1 is specified with the condition ULFPTx_Mode1, ULFPTx_Mode2 or ULFPTx_ModeFull in 38.508-1 [5] subclause 4.3.6.1.1.2 depending on UE reported capability. Message contents are according to TS 38.508-1 [5] clause 4.6.3 Table 4.6.3-118 with condition TRANSFORM_PRECODER_ENABLED.

6.2D.3.4.3 Message contents

Message contents are according to TS 38.508-1 [5] subclause 4.6.1 ensuring Table 4.6.3-182 with the condition 2TX_UL_MIMO, with the following exceptions for each network signalling value.

6.2D.3.4.3.1 Message contents exceptions for network signalling value "NS_04"

1. Information element additionalSpectrumEmission is set to NS_04. This can be set in the *SIB1* as part of the cell broadcast message. This exception indicates that the UE shall meet the additional spurious emission requirement for a specific deployment scenario.

Table 6.2D.3.4.3.1-1: *AdditionalSpectrumEmission*: Additional spurious emissions test requirement for "NS_04"

Derivation Path: TS 38.508-1 [5], Table 4.6.3-1			
Information Element	**Value/remark**	**Comment**	**Condition**
additionalSpectrumEmission	1 (NS_04)		

6.2D.3.4.3.2 Message contents exceptions for network signalling value "NS_35"

1. Information element additionalSpectrumEmission is set to NS_35. This can be set in the *SIB1* as part of the cell broadcast message. This exception indicates that the UE shall meet the additional spurious emission requirement for a specific deployment scenario.

Table 6.2D.3.4.3.2-1: *AdditionalSpectrumEmission*: Additional spurious emissions test requirement for "NS_35" and NR band n71

Derivation Path: TS 38.508-1 [5], Table 4.6.3-1			
Information Element	**Value/remark**	**Comment**	**Condition**
additionalSpectrumEmission	1 (NS_35)		

6.2D.3.4.3.3 Message contents exceptions for network signalling value "NS_05"

1. Information element additionalSpectrumEmission is set to NS_05. This can be set in the *SIB1* as part of the cell broadcast message. This exception indicates that the UE shall meet the additional spurious emission requirement for a specific deployment scenario.

Table 6.2D.3.4.3.3-1: *AdditionalSpectrumEmission*: Additional spurious emissions test requirement for "NS_05"

Derivation Path: TS 38.508-1 [5], Table 4.6.3-1			
Information Element	**Value/remark**	**Comment**	**Condition**
additionalSpectrumEmission	2 (NS_05)		

6.2D.3.4.3.4 Message contents exceptions for network signalling value "NS_05U"

1. Information element additionalSpectrumEmission is set to NS_05U. This can be set in the *SIB1* as part of the cell broadcast message. This exception indicates that the UE shall meet the additional spurious emission requirement for a specific deployment scenario.

Table 6.2D.3.4.3.4-1: *AdditionalSpectrumEmission*: Additional spurious emissions test requirement for "NS_05U"

Derivation Path: TS 38.508-1 [5], Table 4.6.3-1			
Information Element	**Value/remark**	**Comment**	**Condition**
additionalSpectrumEmission	3 (NS_05U)		

6.2D.3.4.3.5 Message contents exceptions for network signalling value "NS_48"

1. Information element additionalSpectrumEmission is set to NS_48. This can be set in the *SIB1* as part of the cell broadcast message. This exception indicates that the UE shall meet the additional spurious emission requirement for a specific deployment scenario.

Table 6.2D.3.4.3.5-1: *AdditionalSpectrumEmission*: Additional spurious emissions test requirement for "NS_48"

Derivation Path: TS 38.508-1 [5], Table 4.6.3-1			
Information Element	**Value/remark**	**Comment**	**Condition**
additionalSpectrumEmission	4 (NS_48)		

6.2D.3.4.3.6 Message contents exceptions for network signalling value "NS_49"

1. Information element additionalSpectrumEmission is set to NS_49. This can be set in the *SIB1* as part of the cell broadcast message. This exception indicates that the UE shall meet the additional spurious emission requirement for a specific deployment scenario.

Table 6.2D.3.4.3.6-1: *AdditionalSpectrumEmission*: Additional spurious emissions test requirement for "NS_49"

Derivation Path: TS 38.508-1 [5], Table 4.6.3-1			
Information Element	**Value/remark**	**Comment**	**Condition**
additionalSpectrumEmission	5 (NS_49)		

6.2D.3.4.3.7 Message contents exceptions for network signalling value "NS_100"

1. Information element additionalSpectrumEmission is set to NS_100. This can be set in the *SIB1* as part of the cell broadcast message. This exception indicates that the UE shall meet the additional spurious emission requirement for a specific deployment scenario.

Table 6.2D.3.4.3.7-1: *AdditionalSpectrumEmission*: Additional spurious emissions test requirement for "NS_100"

Derivation Path: TS 38.508-1 [5], Table 4.6.3-1			
Information Element	**Value/remark**	**Comment**	**Condition**
additionalSpectrumEmission	1 (NS_100)		not for band n65
	2 (NS_100)		for band n65

6.2D.3.4.3.8 Message contents exceptions for network signalling value “NS_03”

1. Information element additionalSpectrumEmission is set to NS_03. This can be set in the *SIB1* as part of the cell broadcast message. This exception indicates that the UE shall meet the additional spurious emission requirement for a specific deployment scenario.

Table 6.2D.3.4.3.8-1: *AdditionalSpectrumEmission*: Additional spurious emissions test requirement for "NS_03" and NR band n2, n25 and n66

Derivation Path: TS 38.508-1 [5], Table 4.6.3-1			
Information Element	**Value/remark**	**Comment**	**Condition**
additionalSpectrumEmission	2 (NS_03)		

Table 6.2D.3.4.3.8-2: *AdditionalSpectrumEmission*: Additional spurious emissions test requirement for "NS_03" and NR band n70

Derivation Path: TS 38.508-1 [5], Table 4.6.3-1			
Information Element	**Value/remark**	**Comment**	**Condition**
additionalSpectrumEmission	1 (NS_03)		

6.2D.3.4.3.9 Message contents exceptions for network signalling value "NS_03U"

1. Information element additionalSpectrumEmission is set to NS_03U. This can be set in the *SIB1* as part of the cell broadcast message. This exception indicates that the UE shall meet the additional spurious emission requirement for a specific deployment scenario.

Table 6.2D.3.4.3.9-1: *AdditionalSpectrumEmission*: Additional spurious emissions test requirement for "NS_03U"

Derivation Path: TS 38.508-1 [5], Table 4.6.3-1			
Information Element	**Value/remark**	**Comment**	**Condition**
additionalSpectrumEmission	3 (NS_03U)		for band n2, n25, n66

6.2D.3.4.3.10 Message contents exceptions for network signalling value "NS_46"

1. Information element additionalSpectrumEmission is set to NS_46. This can be set in the *SIB1* as part of the cell broadcast message. This exception indicates that the UE shall meet the additional spurious emission requirement for a specific deployment scenario.

Table 6.2D.3.4.3.10-1: *AdditionalSpectrumEmission*: Additional spurious emissions test requirement for "NS_46"

Derivation Path: TS 38.508-1 [5], Table 4.6.3-1			
Information Element	**Value/remark**	**Comment**	**Condition**
additionalSpectrumEmission	1 (NS_46)		for band n7

6.2D.3.4.3.11 Message contents exceptions for network signalling value "NS_21"

1. Information element additionalSpectrumEmission is set to NS_21. This can be set in the *SIB1* as part of the cell broadcast message. This exception indicates that the UE shall meet the additional spurious emission requirement for a specific deployment scenario.

Table 6.2D.3.4.3.11-1: *AdditionalSpectrumEmission*: Additional spurious emissions test requirement for "NS_21"

Derivation Path: TS 38.508-1 [5], Table 4.6.3-1			
Information Element	**Value/remark**	**Comment**	**Condition**
additionalSpectrumEmission	1 (NS_21)		

6.2D.3.4.3.12 Message contents exceptions for network signalling value "NS_44"

1. Information element additionalSpectrumEmission is set to NS_44. This can be set in the *SIB1* as part of the cell broadcast message. This exception indicates that the UE shall meet the additional spurious emission requirement for a specific deployment scenario.

Table 6.2D.3.4.3.12-1: *AdditionalSpectrumEmission*: Additional spurious emissions test requirement for "NS_44"

Derivation Path: TS 38.508-1 [5], Table 4.6.3-1			
Information Element	**Value/remark**	**Comment**	**Condition**
additionalSpectrumEmission	1 (NS_44)		

6.2D.3.4.3.13 Message contents exceptions for network signalling value "NS_27"

1. Information element additionalSpectrumEmission is set to NS_27. This can be set in the *SIB1* as part of the cell broadcast message. This exception indicates that the UE shall meet the additional spurious emission requirement for a specific deployment scenario.

Table 6.2D.3.4.3.13-1: *AdditionalSpectrumEmission*: Additional spurious emissions test requirement for "NS_27"

Derivation Path: TS 38.508-1 [5], Table 4.6.3-1			
Information Element	**Value/remark**	**Comment**	**Condition**
additionalSpectrumEmission	1 (NS_27)		

6.2D.3.5 Test requirement

The maximum output power, derived in step 3 shall be within the range prescribed by the nominal maximum output power and tolerance in the applicable table from table 6.2D.3.5-1 to table 6.2D.3.5-14. The allowed A-MPR values specified in table 6.2.3.3.1-1 are in addition to the allowed MPR requirements specified in clause 6.2.2.3. For the UE maximum output power modified by MPR and/or A-MPR, the power limits specified in table 6.2D.1.3-1 apply.

Table 6.2D.3.5-0: Test Tolerance (UE additional maximum output power reduction)

	f ≤ 3.0GHz	**3.0GHz < f ≤ 6.0GHz**
BW ≤ 40MHz	0.7	1.0
40MHz < BW ≤ 100MHz	1.0	1.0

Table 6.2D.3.5-1: UE Power Class 2 test requirements (NS_04) for band n41

Test ID	$P_{PowerClass}$ (dBm)	MPR (dB)	A-MPR (dB)	$\Delta T_{C,c}$ (dB)	$P_{CMAX,c}$ (dBm)	$T(P_{CMAX\_L,c})$ (dB)	$T_{L,c}$ (dB)	Upper limit (dBm)	Lower limit (Note 2) (dBm)
1	26	4	7.5	1.5[2]	17	5	3	28+TT	12.0-TT
2	26	4	6.5	0	19.5	5	3	28+TT	14.5-TT
3	26	4	0	0	22	5	3	28+TT	17.0-TT
4	26	3.5	6.5	0	19.5	5	3	28+TT	14.5-TT
5	26	4	0	1.5[2]	20.5	6	3	28+TT	14.5-TT
6	26	3.5	0	0	22.5	5	3	28+TT	17.5-TT
7	26	4	7.5	1.5[2]	17	5	3	28+TT	12.0-TT
8	26	4	6.5	0	19.5	5	3	28+TT	14.5-TT
9	26	4	0	0	22	5	3	28+TT	17.0-TT
10	26	3.5	6.5	0	19.5	5	3	28+TT	14.5-TT
11	26	4	0	1.5[2]	20.5	6	3	28+TT	14.5-TT
12	26	3.5	0	0	22.5	5	3	28+TT	17.5-TT
13	26	4.5	7.5	1.5[2]	17	5	3	28+TT	12.0-TT
14	26	4.5	6.5	0	19.5	5	3	28+TT	14.5-TT
15	26	4.5	0	0	21.5	5	3	28+TT	16.5-TT
16	26	4.5	6.5	0	19.5	5	3	28+TT	14.5-TT
17	26	4.5	0	1.5[2]	20	6	3	28+TT	14.0-TT
18	26	4.5	0	0	21.5	5	3	28+TT	16.5-TT
19	26	8	10	1.5[2]	14.5	6	3	28+TT	8.5-TT
20	26	8	7.5	0	18	5	3	28+TT	13.0-TT
21	26	8	0	0	18	5	3	28+TT	13.0-TT
22	26	8	7.5	0	18	5	3	28+TT	13.0-TT
23	26	8	0	1.5[2]	16.5	5	3	28+TT	11.5-TT
24	26	8	0	0	18	5	3	28+TT	13.0-TT

NOTE 1: $P_{PowerClass}$ is the maximum UE power specified without taking into account the tolerance.
NOTE 2: For Band n41, refers to the transmission bandwidths confined within F_{UL_low} and F_{UL_low} + 4 MHz or F_{UL_high} – 4 MHz and F_{UL_high}, the lower limit shall be decreased by 1.5 dB.
NOTE 3: TT=0.7 for $BW_{channel} \leq 40$ MHz; TT=1.0 for 40 MHz < $BW_{channel} \leq 100$ MHz.

Table 6.2D.3.5-1a: UE Power Class 2 test requirements (NS_04) for band n41 with supporting ULFPTx

Test ID	$P_{PowerClass}$ (dBm)	MPR (dB)	A-MPR (dB)	$\Delta T_{C,c}$ (dB)	$P_{CMAX,c}$ (dBm)	$T(P_{CMAX\_L,c})$ (dB)	$T_{L,c}$ (dB)	Upper limit (dBm)	Lower limit (Note 2) (dBm)
7	26	3.5	5.5	1.5[2]	19	5	3	28+TT	14.-TT
8	26	3.5	3.5	0	22.5	5	3	28+TT	17.5-TT
9	26	3.5	0	0	22.5	5	3	28+TT	17.5-TT
10	26	1	3.5	0	22.5	5	3	28+TT	17.5-TT
11	26	3.5	0	1.5[2]	21	5	3	28+TT	16.-TT
12	26	1	0	0	25	3	3	28+TT	22.-TT
13	26	3.5	6	1.5[2]	18.5	5	3	28+TT	13.5-TT
14	26	3.5	4.5	0	21.5	5	3	28+TT	16.5-TT
15	26	3.5	0	0	22.5	5	3	28+TT	17.5-TT
16	26	2	4.5	0	21.5	5	3	28+TT	16.5-TT
17	26	3.5	0	1.5[2]	21	5	3	28+TT	16.-TT
18	26	2	0	0	24	3	3	28+TT	21.-TT
19	26	3.5	6	1.5[2]	18.5	5	3	28+TT	13.5-TT
20	26	3.5	5	0	21	5	3	28+TT	16.-TT
21	26	3.5	0	0	22.5	5	3	28+TT	17.5-TT
22	26	2.5	5	0	21	5	3	28+TT	16.-TT
23	26	3.5	0	1.5[2]	21	5	3	28+TT	16.-TT
24	26	2.5	0	0	23.5	3	3	28+TT	20.5-TT
25	26	3.5	6.5	1.5[2]	18	5	3	28+TT	13.-TT
26	26	3.5	5	0	21	5	3	28+TT	16.-TT
27	26	3.5	0	0	22.5	5	3	28+TT	17.5-TT
28	26	3	5	0	21	5	3	28+TT	16.-TT
29	26	3.5	0	1.5[2]	21	5	3	28+TT	16.-TT
30	26	3	0	0	23	3	3	28+TT	20.-TT
31	26	5.5	8	1.5[2]	16.5	5	3	28+TT	11.5-TT
32	26	5.5	6.5	0	19.5	5	3	28+TT	14.5-TT
33	26	5.5	0	0	20.5	6	3	28+TT	14.5-TT
34	26	5.5	6.5	0	19.5	5	3	28+TT	14.5-TT
35	26	5.5	0	1.5[2]	19	5	3	28+TT	14.-TT
36	26	5.5	0	0	20.5	6	3	28+TT	14.5-TT
37	26	4	7.5	1.5[2]	17	5	3	28+TT	12.-TT
38	26	4	6.5	0	19.5	5	3	28+TT	14.5-TT
39	26	4	0	0	22	5	3	28+TT	17.-TT
40	26	3.5	6.5	0	19.5	5	3	28+TT	14.5-TT
41	26	4	0	1.5[2]	20.5	6	3	28+TT	14.5-TT
42	26	3.5	0	0	22.5	5	3	28+TT	17.5-TT
43	26	4	7.5	1.5[2]	17	5	3	28+TT	12.-TT
44	26	4	6.5	0	19.5	5	3	28+TT	14.5-TT
45	26	4	0	0	22	5	3	28+TT	17.-TT
46	26	3.5	6.5	0	19.5	5	3	28+TT	14.5-TT
47	26	4	0	1.5[2]	20.5	6	3	28+TT	14.5-TT
48	26	3.5	0	0	22.5	5	3	28+TT	17.5-TT
49	26	4.5	7.5	1.5[2]	17	5	3	28+TT	12.-TT
50	26	4.5	6.5	0	19.5	5	3	28+TT	14.5-TT
51	26	4.5	0	0	21.5	5	3	28+TT	16.5-TT
52	26	4.5	6.5	0	19.5	5	3	28+TT	14.5-TT
53	26	4.5	0	1.5[2]	20	6	3	28+TT	14.-TT
54	26	4.5	0	0	21.5	5	3	28+TT	16.5-TT
55	26	8	10	1.5[2]	14.5	6	3	28+TT	8.5-TT
56	26	8	7.5	0	18	5	3	28+TT	13.-TT
57	26	8	0	0	18	5	3	28+TT	13.-TT
58	26	8	7.5	0	18	5	3	28+TT	13.-TT
59	26	8	0	1.5[2]	16.5	5	3	28+TT	11.5-TT
60	26	8	0	0	18	5	3	28+TT	13.-TT

NOTE 1: $P_{PowerClass}$ is the maximum UE power specified without taking into account the tolerance.
NOTE 2: For Band n41, refers to the transmission bandwidths confined within F_{UL_low} and F_{UL_low} + 4 MHz or F_{UL_high} – 4 MHz and F_{UL_high}, the lower limit shall be decreased by 1.5 dB.
NOTE 3: TT=0.7 for $BW_{channel} \leq 40$ MHz; TT=1.0 for 40 MHz < $BW_{channel} \leq 100$ MHz.

Table 6.2D.3.5-2: UE Power Class 3 test requirements (NS_04) for band n41

Test ID	$P_{PowerClass}$ (dBm)	MPR (dB)	A-MPR (dB)	$\Delta T_{C,c}$ (dB)	$P_{CMAX,c}$ (dBm)	$T(P_{CMAX\_L,c})$ (dB)	$T_{L,c}$ (dB)	Upper limit (dBm)	Lower limit (Note 2) (dBm)
1	23	3	5.5	1.5[2]	16	5	3	25+TT	11.0-TT
2	23	3	5.5	0	17.5	5	3	25+TT	12.5-TT
3	23	3	0	0	20	6	3	25+TT	14.0-TT
4	23	3	5.5	0	17.5	5	3	25+TT	12.5-TT
5	23	3	0	1.5[2]	18.5	5	3	25+TT	13.5-TT
6	23	3	0	0	20	6	3	25+TT	14.0-TT
7	23	3	5.5	1.5[2]	16	5	3	25+TT	11.0-TT
8	23	3	5.5	0	17.5	5	3	25+TT	12.5-TT
9	23	3	0	0	20	6	3	25+TT	14.0-TT
10	23	3	5.5	0	17.5	5	3	25+TT	12.5-TT
11	23	3	0	1.5[2]	18.5	5	3	25+TT	13.5-TT
12	23	3	0	0	20	6	3	25+TT	14.0-TT
13	23	3.5	5.5	1.5[2]	16	5	3	25+TT	11.0-TT
14	23	3.5	5.5	0	17.5	5	3	25+TT	12.5-TT
15	23	3.5	0	0	19.5	5	3	25+TT	14.5-TT
16	23	3.5	5.5	0	17.5	5	3	25+TT	12.5-TT
17	23	3.5	0	1.5[2]	18	5	3	25+TT	13.0-TT
18	23	3.5	0	0	19.5	5	3	25+TT	14.5-TT
19	23	6.5	8	1.5[2]	13.5	6	3	25+TT	7.5-TT
20	23	6.5	6.5	0	16.5	5	3	25+TT	11.5-TT
21	23	6.5	0	0	16.5	5	3	25+TT	11.5-TT
22	23	6.5	6.5	0	16.5	5	3	25+TT	11.5-TT
23	23	6.5	0	1.5[2]	15	6	3	25+TT	9.0-TT
24	23	6.5	0	0	16.5	5	3	25+TT	11.5-TT

NOTE 1: $P_{PowerClass}$ is the maximum UE power specified without taking into account the tolerance.
NOTE 2: For Band n41, refers to the transmission bandwidths confined within F_{UL_low} and F_{UL_low} + 4 MHz or F_{UL_high} – 4 MHz and F_{UL_high}, the lower limit shall be decreased by 1.5 dB.
NOTE 3: TT=0.7 for $BW_{channel} \leq 40$ MHz; TT=1.0 for 40 MHz < $BW_{channel} \leq 100$ MHz.

Table 6.2D.3.5-2a: UE Power Class 3 test requirements (NS_04) for band n41 with supporting ULFPTx

Test ID	$P_{PowerClass}$ (dBm)	$\Delta P_{PowerClass}$ (dB)	MPR (dB)	A-MPR (dB)	$\Delta T_{C,c}$ (dB)	$P_{CMAX,c}$ (dBm)	$T(P_{CMAX\_L,c})$ (dB)	$T_{L,c}$ (dB)	Upper limit (dBm)	Lower limit (Note 2) (dBm)
1	23	-3	3.5	3.5	1.5[2]	21	5	3	28+TT	16.-TT
2	23	-3	3.5	3.5	0	22.5	5	3	28+TT	17.5-TT
3	23	-3	3.5	0	0	22.5	5	3	28+TT	17.5-TT
4	23	-3	1.2	3.5	0	22.5	5	3	28+TT	17.5-TT
5	23	-3	3.5	0	1.5[2]	21	5	3	28+TT	16.-TT
6	23	-3	1.2	0	0	24.8	3	3	28+TT	21.8-TT
7	23	0	0.5	3.5	1.5[2]	18	5	3	25+TT	13.-TT
8	23	0	0.5	3.5	0	19.5	5	3	25+TT	14.5-TT
9	23	0	0.5	0	0	22.5	5	3	25+TT	17.5-TT
10	23	0	0.5	3.5	0	19.5	5	3	25+TT	14.5-TT
11	23	0	0.5	0	1.5[2]	21	5	3	25+TT	16.-TT
12	23	0	0.5	0	0	22.5	5	3	25+TT	17.5-TT
13	23	0	1	4	1.5[2]	17.5	5	3	25+TT	12.5-TT
14	23	0	1	4	0	19	5	3	25+TT	14.-TT
15	23	0	1	0	0	22	5	3	25+TT	17.-TT
16	23	0	1	4	0	19	5	3	25+TT	14.-TT
17	23	0	1	0	1.5[2]	20.5	6	3	25+TT	14.5-TT
18	23	0	1	0	0	22	5	3	25+TT	17.-TT
19	23	0	2	4	1.5[2]	17.5	5	3	25+TT	12.5-TT
20	23	0	2	4	0	19	5	3	25+TT	14.-TT
21	23	0	2	0	0	21	5	3	25+TT	16.-TT
22	23	0	2	4	0	19	5	3	25+TT	14.-TT
23	23	0	2	0	1.5[2]	19.5	5	3	25+TT	14.5-TT
24	23	0	2	0	0	21	5	3	25+TT	16.-TT
25	23	0	2.5	4.5	1.5[2]	17	5	3	25+TT	12.-TT
26	23	0	2.5	4	0	19	5	3	25+TT	14.-TT
27	23	0	2.5	0	0	20.5	6	3	25+TT	14.5-TT
28	23	0	2.5	4	0	19	5	3	25+TT	14.-TT
29	23	0	2.5	0	1.5[2]	19	5	3	25+TT	14.-TT
30	23	0	2.5	0	0	20.5	6	3	25+TT	14.5-TT
31	23	0	4.5	6	1.5[2]	15.5	6	3	25+TT	9.5-TT
32	23	0	4.5	4.5	0	18.5	5	3	25+TT	13.5-TT
33	23	0	4.5	0	0	18.5	5	3	25+TT	13.5-TT
34	23	0	4.5	4.5	0	18.5	5	3	25+TT	13.5-TT
35	23	0	4.5	0	1.5[2]	17	5	3	25+TT	12.-TT
36	23	0	4.5	0	0	18.5	5	3	25+TT	13.5-TT
37	23	0	3	5.5	1.5[2]	16	5	3	25+TT	11.-TT
38	23	0	3	5.5	0	17.5	5	3	25+TT	12.5-TT
39	23	0	3	0	0	20	6	3	25+TT	14.-TT
40	23	0	3	5.5	0	17.5	5	3	25+TT	12.5-TT
41	23	0	3	0	1.5[2]	18.5	5	3	25+TT	13.5-TT
42	23	0	3	0	0	20	6	3	25+TT	14.-TT
43	23	0	3	5.5	1.5[2]	16	5	3	25+TT	11.-TT
44	23	0	3	5.5	0	17.5	5	3	25+TT	12.5-TT
45	23	0	3	0	0	20	6	3	25+TT	14.-TT
46	23	0	3	5.5	0	17.5	5	3	25+TT	12.5-TT
47	23	0	3	0	1.5[2]	18.5	5	3	25+TT	13.5-TT
48	23	0	3	0	0	20	6	3	25+TT	14.-TT
49	23	0	3.5	5.5	1.5[2]	16	5	3	25+TT	11.-TT
50	23	0	3.5	5.5	0	17.5	5	3	25+TT	12.5-TT
51	23	0	3.5	0	0	19.5	5	3	25+TT	14.5-TT
52	23	0	3.5	5.5	0	17.5	5	3	25+TT	12.5-TT
53	23	0	3.5	0	1.5[2]	18	5	3	25+TT	13.-TT
54	23	0	3.5	0	0	19.5	5	3	25+TT	14.5-TT
55	23	0	6.5	8	1.5[2]	13.5	6	3	25+TT	7.5-TT
56	23	0	6.5	6.5	0	16.5	5	3	25+TT	11.5-TT
57	23	0	6.5	0	0	16.5	5	3	25+TT	11.5-TT
58	23	0	6.5	6.5	0	16.5	5	3	25+TT	11.5-TT
59	23	0	6.5	0	1.5[2]	15	6	3	25+TT	9.-TT
60	23	0	6.5	0	0	16.5	5	3	25+TT	11.5-TT

NOTE 1: $P_{PowerClass}$ is the maximum UE power specified without taking into account the tolerance.
NOTE 2: For Band n41, refers to the transmission bandwidths confined within F_{UL_low} and F_{UL_low} + 4 MHz or F_{UL_high} – 4 MHz and F_{UL_high}, the lower limit shall be decreased by 1.5 dB.
NOTE 3: TT=0.7 dB for $BW_{channel} \leq 40$ MHz; TT=1.0 dB for 40 MHz < $BW_{channel} \leq 100$ MHz.

Table 6.2D.3.5-3: UE Power Class 3 test requirements (NS_35) for band n71

Test ID	$P_{PowerClass}$ (dBm)	MPR (dB)	A-MPR (dB)	$\Delta T_{C,c}$ (dB)	$P_{CMAX,c}$ (dBm)	$T(P_{CMAX\_L,c})$ (dB)	$T_{L,c}$ (dB)	Upper limit (dBm)	Lower limit (dBm)
1	23	3	0	0	20	6	3	25+TT	14.0 - TT
2	23	3	0	0	20	6	3	25+TT	14.0 - TT
3	23	3	0	0	20	6	3	25+TT	14.0 - TT
4	23	3	0	0	20	6	3	25+TT	14.0 - TT
5	23	3	0	0	20	6	3	25+TT	14.0 - TT
6	23	3	0	0	20	6	3	25+TT	14.0 - TT
7	23	3.5	0	0	19.5	5	3	25+TT	14.5 - TT
8	23	3.5	0	0	19.5	5	3	25+TT	14.5 - TT
9	23	3.5	0	0	19.5	5	3	25+TT	14.5 - TT
10	23	6.5	0	0	16.5	5	3	25+TT	11.5 - TT
11	23	6.5	0	0	16.5	5	3	25+TT	11.5 - TT
12	23	6.5	0	0	16.5	5	3	25+TT	11.5 - TT

NOTE 1: $P_{PowerClass}$ is the maximum UE power specified without taking into account the tolerance.
NOTE 2: TT for each frequency and channel bandwidth is specified in Table 6.2D.3.5-0.

Table 6.2D.3.5-4: UE Power Class 3 test requirements (NS_05) for band n1

Test ID	$P_{PowerClass}$ (dBm)	$\Delta P_{PowerClass}$ (dB)	MPR (dB)	A-MPR (dB)	$\Delta T_{C,c}$ (dB)	$P_{CMAX\_L,c}$ (dBm)	$T(P_{CMAX\_L,c})$ (dB)	$T_{L,c}$ (dB)	Upper limit (dBm)	Lower limit (dBm)
1	23	0	3.0	7.5	0	15.5	6	2	25+TT	9.5-TT
2	23	0	3.0	10	0	13	6	2	25+TT	7-TT
3	23	0	3.0	6	0	17	5	2	25+TT	12-TT
4	23	0	3.0	5	0	18	5	2	25+TT	13-TT
5	23	0	3.0	3.5	0	19.5	5	2	25+TT	14.5-TT
6	23	0	3.0	10	0	13	6	2	25+TT	7-TT
7	23	0	3.0	6	0	17	5	2	25+TT	12-TT
8	23	0	3.0	5	0	18	5	2	25+TT	13-TT
9	23	0	3.0	10	0	13	6	2	25+TT	7-TT
10	23	0	3.0	5	0	18	5	2	25+TT	13-TT
11	23	0	3.0	3.5	0	19.5	5	2	25+TT	14.5-TT
12	23	0	3.0	10	0	13	6	2	25+TT	7-TT
13	23	0	3.0	6	0	17	5	2	25+TT	12-TT
14	23	0	3.0	5	0	18	5	2	25+TT	13-TT
15	23	0	3.0	3.5	0	19.5	5	2	25+TT	14.5-TT
16	23	0	3.0	7.5	0	15.5	6	2	25+TT	9.5-TT
17	23	0	3.0	10	0	13	6	2	25+TT	7-TT
18	23	0	3.0	6	0	17	5	2	25+TT	12-TT
19	23	0	3.0	5	0	18	5	2	25+TT	13-TT
20	23	0	3.0	3.5	0	19.5	5	2	25+TT	14.5-TT
21	23	0	3.0	10	0	13	6	2	25+TT	7-TT
22	23	0	3.0	6	0	17	5	2	25+TT	12-TT
23	23	0	3.0	5	0	18	5	2	25+TT	13-TT
24	23	0	3.0	10	0	13	6	2	25+TT	7-TT
25	23	0	3.0	5	0	18	5	2	25+TT	13-TT
26	23	0	3.0	3.5	0	19.5	5	2	25+TT	14.5-TT
27	23	0	3.0	10	0	13	6	2	25+TT	7-TT
28	23	0	3.0	6	0	17	5	2	25+TT	12-TT
29	23	0	3.0	5	0	18	5	2	25+TT	13-TT
30	23	0	3.0	3.5	0	19.5	5	2	25+TT	14.5-TT
31	23	0	3.5	8	0	15	6	2	25+TT	9-TT
32	23	0	3.5	11	0	12	6	2	25+TT	6-TT
33	23	0	3.5	6	0	17	5	2	25+TT	12-TT
34	23	0	3.5	5	0	18	5	2	25+TT	13-TT
35	23	0	3.5	11	0	12	6	2	25+TT	6-TT
36	23	0	3.5	6	0	17	5	2	25+TT	12-TT
37	23	0	3.5	5	0	18	5	2	25+TT	13-TT
38	23	0	3.5	11	0	12	6	2	25+TT	6-TT
39	23	0	3.5	5	0	18	5	2	25+TT	13-TT
40	23	0	3.5	11	0	12	6	2	25+TT	6-TT
41	23	0	3.5	6	0	17	5	2	25+TT	12-TT
42	23	0	3.5	5	0	18	5	2	25+TT	13-TT
43	23	0	6.5	10	0	13	6	2	25+TT	7-TT
44	23	0	6.5	13	0	10	7	2	25+TT	3-TT
45	23	0	6.5	6	0	16.5	5	2	25+TT	11.5-TT
46	23	0	6.5	13	0	10	7	2	25+TT	3-TT
47	23	0	6.5	6	0	16.5	5	2	25+TT	11.5-TT
48	23	0	6.5	13	0	10	7	2	25+TT	3-TT
49	23	0	6.5	13	0	10	7	2	25+TT	3-TT
50	23	0	6.5	6	0	16.5	5	2	25+TT	11.5-TT

NOTE 1: $P_{PowerClass}$ is the maximum UE power specified without taking into account the tolerance.
NOTE 2: TT for each frequency and channel bandwidth is specified in Table 6.2.3.5-0.

Table 6.2D.3.5-5: UE Power Class 3 test requirements (NS_05U) for band n1

Test ID	$P_{PowerClass}$ (dBm)	$\Delta P_{PowerClass}$ (dB)	MPR (dB)	A-MPR (dB)	$\Delta T_{C,c}$ (dB)	$P_{CMAX\_L,c}$ (dBm)	$T(P_{CMAX\_L,c})$ (dB)	$T_{L,c}$ (dB)	Upper limit (dBm)	Lower limit (dBm)
1	23	0	3.0	7.5	0	15.5	6	2	25+TT	9.5-TT
2	23	0	3.0	10	0	13	6	2	25+TT	7-TT
3	23	0	3.0	6	0	17	5	2	25+TT	12-TT
4	23	0	3.0	5	0	18	5	2	25+TT	13-TT
5	23	0	3.0	4	0	19	5	2	25+TT	14-TT
6	23	0	3.0	10	0	13	6	2	25+TT	7-TT
7	23	0	3.0	6	0	17	5	2	25+TT	12-TT
8	23	0	3.0	5	0	18	5	2	25+TT	13-TT
9	23	0	3.0	10	0	13	6	2	25+TT	7-TT
10	23	0	3.0	5	0	18	5	2	25+TT	13-TT
11	23	0	3.0	4	0	19	5	2	25+TT	14-TT
12	23	0	3.0	10	0	13	6	2	25+TT	7-TT
13	23	0	3.0	6	0	17	5	2	25+TT	12-TT
14	23	0	3.0	5	0	18	5	2	25+TT	13-TT
15	23	0	3.0	4	0	19	5	2	25+TT	14-TT
16	23	0	3.0	7.5	0	15.5	6	2	25+TT	9.5-TT
17	23	0	3.0	10	0	13	6	2	25+TT	7-TT
18	23	0	3.0	6	0	17	5	2	25+TT	12-TT
19	23	0	3.0	5	0	18	5	2	25+TT	13-TT
20	23	0	3.0	4	0	19	5	2	25+TT	14-TT
21	23	0	3.0	10	0	13	6	2	25+TT	7-TT
22	23	0	3.0	6	0	17	5	2	25+TT	12-TT
23	23	0	3.0	5	0	18	5	2	25+TT	13-TT
24	23	0	3.0	10	0	13	6	2	25+TT	7-TT
25	23	0	3.0	5	0	18	5	2	25+TT	13-TT
26	23	0	3.0	4	0	19	5	2	25+TT	14-TT
27	23	0	3.0	10	0	13	6	2	25+TT	7-TT
28	23	0	3.0	6	0	17	5	2	25+TT	12-TT
29	23	0	3.0	5	0	18	5	2	25+TT	13-TT
30	23	0	3.0	4	0	19	5	2	25+TT	14-TT
31	23	0	3.5	8	0	15	6	2	25+TT	9-TT
32	23	0	3.5	11	0	12	6	2	25+TT	6-TT
33	23	0	3.5	6	0	17	5	2	25+TT	12-TT
34	23	0	3.5	5	0	18	5	2	25+TT	13-TT
35	23	0	3.5	4	0	19	5	2	25+TT	14-TT
36	23	0	3.5	11	0	12	6	2	25+TT	6-TT
37	23	0	3.5	6	0	17	5	2	25+TT	12-TT
38	23	0	3.5	5	0	18	5	2	25+TT	13-TT
39	23	0	3.5	11	0	12	6	2	25+TT	6-TT
40	23	0	3.5	5	0	18	5	2	25+TT	13-TT
41	23	0	3.5	4	0	19	5	2	25+TT	14-TT
42	23	0	3.5	11	0	12	6	2	25+TT	6-TT
43	23	0	3.5	6	0	17	5	2	25+TT	12-TT
44	23	0	3.5	5	0	18	5	2	25+TT	13-TT
45	23	0	3.5	4	0	19	5	2	25+TT	14-TT
46	23	0	6.5	10	0	13	6	2	25+TT	7-TT
47	23	0	6.5	13	0	10	7	2	25+TT	3-TT
48	23	0	6.5	6.5	0	16.5	5	2	25+TT	11.5-TT
49	23	0	6.5	6.5	0	16.5	5	2	25+TT	11.5-TT
50	23	0	6.5	13	0	10	7	2	25+TT	3-TT
51	23	0	6.5	6.5	0	16.5	5	2	25+TT	11.5-TT
52	23	0	6.5	13	0	10	7	2	25+TT	3-TT
53	23	0	6.5	6.5	0	16.5	5	2	25+TT	11.5-TT
54	23	0	6.5	13	0	10	7	2	25+TT	3-TT
55	23	0	6.5	6.5	0	16.5	5	2	25+TT	11.5-TT
56	23	0	6.5	6.5	0	16.5	5	2	25+TT	11.5-TT

NOTE 1: $P_{PowerClass}$ is the maximum UE power specified without taking into account the tolerance.
NOTE 2: TT for each frequency and channel bandwidth is specified in Table 6.2.3.5-0.

Table 6.2D.3.5-6: UE Power Class 3 test requirements (NS_48) for band n1

Test ID	$P_{PowerClass}$ (dBm)	$\Delta P_{PowerClass}$ (dB)	MPR (dB)	A-MPR (dB)	$\Delta T_{C,c}$ (dB)	$P_{CMAX\_L,c}$ (dBm)	$T(P_{CMAX\_L,C})$ (dB)	$T_{L,c}$ (dB)	Upper limit (dBm)	Lower limit (dBm)
1	23	0	3	4.5	0	18.5	5	2	25+TT	13.5-TT
2	23	0	3	4.5	0	18.5	5	2	25+TT	13.5-TT
3	23	0	3	4.5	0	18.5	5	2	25+TT	13.5-TT
4	23	0	3	5	0	18	5	2	25+TT	13-TT
5	23	0	3	7	0	16	5	2	25+TT	11-TT
6	23	0	3	4.5	0	18.5	5	2	25+TT	13.5-TT
7	23	0	3	5.5	0	17.5	5	2	25+TT	12.5-TT
8	23	0	3	7	0	16	5	2	25+TT	11-TT
9	23	0	1.5	4.5	0	18.5	5	2	25+TT	13.5-TT
10	23	0	3	11	0	12	6	2	25+TT	6-TT
11	23	0	3	7	0	16	5	2	25+TT	11-TT
12	23	0	3	5.5	0	17.5	5	2	25+TT	12.5-TT
13	23	0	3	7	0	16	5	2	25+TT	11-TT
14	23	0	1.5	5	0	18	5	2	25+TT	13-TT
15	23	0	3	11	0	12	6	2	25+TT	6-TT
16	23	0	6.5	4.5	0	16.5	5	2	25+TT	11.5-TT
17	23	0	6.5	4.5	0	16.5	5	2	25+TT	11.5-TT
18	23	0	6.5	4.5	0	16.5	5	2	25+TT	11.5-TT
19	23	0	6.5	5	0	16.5	5	2	25+TT	11.5-TT
20	23	0	6.5	7	0	16	5	2	25+TT	11-TT
21	23	0	6.5	4.5	0	16.5	5	2	25+TT	11.5-TT
22	23	0	6.5	5.5	0	16.5	5	2	25+TT	11.5-TT
23	23	0	6.5	7	0	16	5	2	25+TT	11-TT
24	23	0	6.5	4.5	0	16.5	5	2	25+TT	11.5-TT
25	23	0	6.5	11	0	12	6	2	25+TT	6-TT
26	23	0	6.5	7	0	16	5	2	25+TT	11-TT
27	23	0	6.5	5.5	0	16.5	5	2	25+TT	11.5-TT
28	23	0	6.5	7	0	16	5	2	25+TT	11-TT
29	23	0	6.5	5	0	16.5	5	2	25+TT	11.5-TT
30	23	0	6.5	11	0	12	6	2	25+TT	6-TT

NOTE 1: $P_{PowerClass}$ is the maximum UE power specified without taking into account the tolerance.
NOTE 2: TT for each frequency and channel bandwidth is specified in Table 6.2.3.5-0.

Table 6.2D.3.5-7: UE Power Class 3 test requirements (NS_49) for band n1

Test ID	$P_{PowerClass}$ (dBm)	$\Delta P_{PowerClass}$ (dB)	MPR (dB)	A-MPR (dB)	$\Delta T_{C,c}$ (dB)	$P_{CMAX\_L,c}$ (dBm)	$T(P_{CMAX\_L,C})$ (dB)	$T_{L,c}$ (dB)	Upper limit (dBm)	Lower limit (dBm)
1	23	0	3	4.5	0	18.5	5	2	25+TT	13.5-TT
2	23	0	3	4.5	0	18.5	5	2	25+TT	13.5-TT
3	23	0	3	4.5	0	18.5	5	2	25+TT	13.5-TT
4	23	0	3	11	0	12	6	2	25+TT	6-TT
5	23	0	3	5	0	18	5	2	25+TT	13-TT
6	23	0	3	4.5	0	18.5	5	2	25+TT	13.5-TT
7	23	0	3	5.5	0	17.5	5	2	25+TT	12.5-TT
8	23	0	3	7	0	16	5	2	25+TT	11-TT
9	23	0	3	5	0	18	5	2	25+TT	13-TT
10	23	0	3	11	0	12	6	2	25+TT	6-TT
11	23	0	1.5	5	0	18	5	2	25+TT	13-TT
12	23	0	3	5.5	0	17.5	5	2	25+TT	12.5-TT
13	23	0	3	7	0	16	5	2	25+TT	11-TT
14	23	0	1.5	5	0	18	5	2	25+TT	13-TT
15	23	0	3	11	0	12	6	2	25+TT	6-TT
16	23	0	3	11	0	12	6	2	25+TT	6-TT
17	23	0	1.5	5	0	18	5	2	25+TT	13-TT
18	23	0	1.5	5	0	18	5	2	25+TT	13-TT
19	23	0	3	7	0	16	5	2	25+TT	11-TT
20	23	0	3	11	0	12	6	2	25+TT	6-TT
21	23	0	3	11	0	12	6	2	25+TT	6-TT
22	23	0	6.5	4.5	0	16.5	5	2	25+TT	11.5-TT
23	23	0	6.5	4.5	0	16.5	5	2	25+TT	11.5-TT
24	23	0	6.5	4.5	0	16.5	5	2	25+TT	11.5-TT
25	23	0	6.5	11	0	12	6	2	25+TT	6-TT
26	23	0	6.5	5	0	16.5	5	2	25+TT	11.5-TT
27	23	0	6.5	4.5	0	16.5	5	2	25+TT	11.5-TT
28	23	0	6.5	5.5	0	16.5	5	2	25+TT	11.5-TT
29	23	0	6.5	7	0	16	5	2	25+TT	11-TT
30	23	0	6.5	5	0	16.5	5	2	25+TT	11.5-TT
31	23	0	6.5	11	0	12	6	2	25+TT	6-TT
32	23	0	6.5	5	0	16.5	5	2	25+TT	11.5-TT
33	23	0	6.5	5.5	0	16.5	5	2	25+TT	11.5-TT
34	23	0	6.5	7	0	16	5	2	25+TT	11-TT
35	23	0	6.5	5	0	16.5	5	2	25+TT	11.5-TT
36	23	0	6.5	11	0	12	6	2	25+TT	6-TT
37	23	0	6.5	11	0	12	6	2	25+TT	6-TT
38	23	0	6.5	5	0	16.5	5	2	25+TT	11.5-TT
39	23	0	6.5	5	0	16.5	5	2	25+TT	11.5-TT
40	23	0	6.5	7	0	16	5	2	25+TT	11-TT
41	23	0	6.5	11	0	12	6	2	25+TT	6-TT
42	23	0	6.5	11	0	12	6	2	25+TT	6-TT

NOTE 1: $P_{PowerClass}$ is the maximum UE power specified without taking into account the tolerance.
NOTE 2: TT for each frequency and channel bandwidth is specified in Table 6.2.3.5-0.

Table 6.2D.3.5-8: UE Power Class 3 test requirements (NS_100) for band n1

Test ID	$P_{PowerClass}$ (dBm)	MPR (dB)	A-MPR (dB)	$\Delta T_{C,c}$ (dB)	$P_{CMAX\_L,c}$ (dBm)	$T(P_{CMAX\_L,c})$ (dB)	$T_{L,c}$ (dB)	Upper limit (dBm)	Lower limit (dBm)
1, 2	23	3	4	0	19	5	2	25+TT	14-TT
3	23	3	4	0	19	5	2	25+TT	14-TT
4, 5	23	3	4	0	19	5	2	25+TT	14-TT
6	23	3	4	0	19	5	2	25+TT	14-TT
7, 8	23	3.5	4	0	19	5	2	25+TT	14-TT
9	23	3.5	4	0	19	5	2	25+TT	14-TT
10, 11	23	6.5	6.5	0	16.5	5	2	25+TT	11.5-TT
12	23	6.5	6.5	0	16.5	5	2	25+TT	11.5-TT
NOTE 1: $P_{PowerClass}$ is the maximum UE power specified without taking into account the tolerance. NOTE 2: TT for each frequency and channel bandwidth is specified in Table 6.2.3.5-0.									

Table 6.2D.3.5-9: UE Power Class 3 test requirements (NS_100) for band n2, n3, n25

Test ID	$P_{PowerClass}$ (dBm)	MPR (dB)	A-MPR (dB)	$\Delta T_{C,c}$ (dB)	$P_{CMAX\_L,c}$ (dBm)	$T(P_{CMAX\_L,c})$ (dB)	$T_{L,c}$ (dB)	Upper limit (dBm)	Lower limit (dBm)
1, 2	23	3	4	1.5	17.5	5	2	25+TT	12.5-TT
3	23	3	4	0	19	5	2	25+TT	14-TT
4, 5	23	3	4	1.5	17.5	5	2	25+TT	12.5-TT
6	23	3	4	0	19	5	2	25+TT	14-TT
7, 8	23	3.5	4	1.5	17.5	5	2	25+TT	12.5-TT
9	23	3.5	4	0	19	5	2	25+TT	14-TT
10, 11	23	6.5	6.5	1.5	15	6	2	25+TT	9-TT
12	23	6.5	6.5	0	16.5	5	2	25+TT	11.5-TT
NOTE 1: $P_{PowerClass}$ is the maximum UE power specified without taking into account the tolerance. NOTE 2: TT for each frequency and channel bandwidth is specified in Table 6.2.3.5-0.									

Table 6.2D.3.5-10: UE Power Class 3 test requirements (NS_03/NS_03U) for band n66, n70

Test ID	Network signalling label	$P_{PowerClass}$ (dBm)	MPR (dB)	A-MPR (dB)	$\Delta T_{C,c}$ (dB)	$P_{CMAX\_L,c}$ (dBm)	$T(P_{CMAX\_L,c})$ (dB)	$T_{L,c}$ (dB)	Upper limit (dBm)	Lower limit (dBm)
1,2	NS_03, NS_03U	23	3	4	0	19	5	2	25+TT	14-TT
3	NS_03, NS_03U	23	3	4	0	19	5	2	25+TT	14-TT
4,5	NS_03, NS_03U	23	3	4	0	19	5	2	25+TT	14-TT
6	NS_03, NS_03U	23	3	4	0	19	5	2	25+TT	14-TT
7,8	NS_03, NS_03U	23	3.5	4	0	19	5	2	25+TT	14-TT
9	NS_03, NS_03U	23	3.5	4	0	19	5	2	25+TT	14-TT
10,11	NS_03, NS_03U	23	6.5	6.5	0	16.5	5	2	25+TT	11.5-TT
12	NS_03, NS_03U	23	6.5	6.5	0	16.5	5	2	25+TT	11.5-TT
NOTE 1: $P_{PowerClass}$ is the maximum UE power specified without taking into account the tolerance. NOTE 2: TT for each frequency and channel bandwidth is specified in Table 6.2.3.5-0.										

Table 6.2D.3.5-11: UE Power Class 3 test requirements (NS_03/NS_03U) for band n2, n25

Test ID	Network signalling label	$P_{PowerClass}$ (dBm)	MPR (dB)	A-MPR (dB)	$\Delta T_{C,c}$ (dB)	$P_{CMAX\_L,c}$ (dBm)	$T(P_{CMAX\_L,c})$ (dB)	$T_{L,c}$ (dB)	Upper limit (dBm)	Lower limit (dBm)
1,2	NS_03, NS_03U	23	3	4	1.5	17.5	5	2	25+TT	12.5-TT
3	NS_03, NS_03U	23	3	4	0	19	5	2	25+TT	14-TT
4,5	NS_03, NS_03U	23	3	4	1.5	17.5	5	2	25+TT	12.5-TT
6	NS_03, NS_03U	23	3	4	0	19	5	2	25+TT	14-TT
7,8	NS_03, NS_03U	23	3.5	4	1.5	17.5	5	2	25+TT	12.5-TT
9	NS_03, NS_03U	23	3.5	4	0	19	5	2	25+TT	14-TT
10,11	NS_03, NS_03U	23	6.5	6.5	1.5	15	6	2	25+TT	9-TT
12	NS_03, NS_03U	23	6.5	6.5	0	16.5	5	2	25+TT	11.5-TT
NOTE 1: $P_{PowerClass}$ is the maximum UE power specified without taking into account the tolerance. NOTE 2: TT for each frequency and channel bandwidth is specified in Table 6.2.3.5-0.										

Table 6.2D.3.5-12: UE Power Class 3 test requirements (NS_46) for band n7

Test ID	$P_{PowerClass}$ (dBm)	$\Delta P_{PowerClass}$ (dB)	MPR (dB)	A-MPR (dB)	$\Delta T_{C,c}$ (dB)	$P_{CMAX\_L,c}$ (dBm)	$T(P_{CMAX\_L,c})$ (dB)	$T_{L,c}$ (dB)	Upper limit (dBm)	Lower limit (dBm)
1	23	0	3	6	0	17	5	2	25+TT	12-TT
2	23	0	6.5	6	0	16.5	5	2	25+TT	11.5-TT
3	23	0	3	5	0	18	5	2	25+TT	13-TT
4	23	0	3.5	5	0	18	5	2	25+TT	13-TT
5	23	0	3	3.5	0	19.5	5	2	25+TT	14.5-TT
6	23	0	3.5	3.5	0	19.5	5	2	25+TT	14.5-TT
7	23	0	3	5.5	0	17.5	5	2	25+TT	12.5-TT
8	23	0	3.5	5.5	0	17.5	5	2	25+TT	12.5-TT
9	23	0	3	7	0	16	5	2	25+TT	11-TT
10	23	0	6.5	7	0	16	5	2	25+TT	11-TT
11	23	0	3	11	0	12	6	2	25+TT	6-TT
12	23	0	6.5	11	0	12	6	2	25+TT	6-TT

NOTE 1: $P_{PowerClass}$ is the maximum UE power specified without taking into account the tolerance.
NOTE 2: TT for each frequency and channel bandwidth is specified in Table 6.2.3.5-0.

Table 6.2D.3.5-13: UE Power Class 3 test requirements (NS_21) for band n30

Test ID	ChBw (MHz)	$P_{PowerClass}$ (dBm)	MPR (dB)	A-MPR (dB)	$\Delta T_{C,c}$ (dB)	$P_{CMAX\_L,c}$ (dBm)	$T(P_{CMAX\_L,c})$ (dB)	$T_{L,c}$ (dB)	Upper limit (dBm)	Lower limit (dBm)
1,2	5	23	3	0	0	20	6	2	25+TT	14-TT
	10	23	3	6	0	14	6	2	25+TT	8-TT
3	5	23	3	0	0	20	6	2	25+TT	14-TT
	10	23	3	5.5	0	14.5	6	2	25+TT	8.5-TT
4,5	10	23	3	4	0	16	5	2	25+TT	11-TT
6,7	5	23	3	0	0	20	6	2	25+TT	14-TT
	10	23	3	6	0	14	6	2	25+TT	8-TT
8	5	23	3	0	0	20	6	2	25+TT	14-TT
	10	23	3	5.5	0	14.5	6	2	25+TT	8.5-TT
9,10	10	23	3	4	0	16	5	2	25+TT	11-TT
11,12	5	23	3.5	0	0	19.5	5	2	25+TT	14.5-TT
	10	23	3.5	6	0	13.5	6	2	25+TT	7.5-TT
13	5	23	3.5	0	0	19.5	5	2	25+TT	14.5-TT
	10	23	3.5	5.5	0	14	6	2	25+TT	8-TT
14,15	10	23	3.5	4	0	15.5	6	2	25+TT	9.5-TT
16,17	5	23	6.5	0	0	16.5	5	2	25+TT	11.5-TT
	10	23	6.5	6	0	10.5	7	2	25+TT	3.5-TT
18	5	23	6.5	0	0	16.5	5	2	25+TT	11.5-TT
19,20	10	23	6.5	5.5	0	11	6	2	25+TT	5-TT
	10	23	6.5	4	0	12.5	6	2	25+TT	6.5-TT

NOTE 1: $P_{PowerClass}$ is the maximum UE power specified without taking into account the tolerance.
NOTE 2: TT for each frequency and channel bandwidth is specified in Table 6.2.3.5-0.

Table 6.2D.3.5-14: UE Power Class 3 test requirements (NS_44) for band n38

Test ID	$P_{PowerClass}$ (dBm)	$\Delta P_{PowerClass}$ (dB)	MPR (dB)	A-MPR (dB)	$\Delta T_{C,c}$ (dB)	$P_{CMAX\_L,c}$ (dBm)	$T(P_{CMAX\_L,C})$ (dB)	$T_{L,c}$ (dB)	Upper limit (dBm)	Lower limit (dBm)
1	23	0	3.5	5	0	18	5	2	25+TT	13-TT
2	23	0	3.5	5	0	18	5	2	25+TT	13-TT
3	23	0	3.5	0	0	19.5	5	2	25+TT	14.5-TT
4	23	0	6.5	0	0	16.5	5	2	25+TT	11.5-TT
5	23	0	6.5	0	0	16.5	5	2	25+TT	11.5-TT
6	23	0	6.5	0	0	16.5	5	2	25+TT	11.5-TT
7	23	0	3.5	5	0	18	5	2	25+TT	13-TT
8	23	0	3.5	5	0	18	5	2	25+TT	13-TT
9	23	0	3.5	0	0	19.5	5	2	25+TT	14.5-TT
10	23	0	6.5	0	0	16.5	5	2	25+TT	11.5-TT
11	23	0	6.5	0	0	16.5	5	2	25+TT	11.5-TT
12	23	0	6.5	0	0	16.5	5	2	25+TT	11.5-TT
13	23	0	3.5	5	0	18	5	2	25+TT	13-TT
14	23	0	3.5	4	0	19	5	2	25+TT	14-TT
15	23	0	3.5	5	0	18	5	2	25+TT	13-TT
16	23	0	3.5	8	0	15	6	2	25+TT	9-TT
17	23	0	3.5	12	0	11	6	2	25+TT	5-TT
18	23	0	6.5	0	0	16.5	5	2	25+TT	11.5-TT
19	23	0	6.5	0	0	16.5	5	2	25+TT	11.5-TT
20	23	0	6.5	0	0	16.5	5	2	25+TT	11.5-TT
21	23	0	6.5	8	0	15	6	2	25+TT	9-TT
22	23	0	6.5	12	0	11	6	2	25+TT	5-TT

NOTE 1: $P_{PowerClass}$ is the maximum UE power specified without taking into account the tolerance.
NOTE 2: TT for each frequency and channel bandwidth is specified in Table 6.2.3.5-0.

Table 6.2D.3.5-15: UE Power Class 3 test requirements (NS_27) for band n48

Test ID	$P_{PowerClass}$ (dBm)	$\Delta P_{PowerClass}$ (dB)	MPR (dB)	A-MPR (dB)	$\Delta T_{C,c}$ (dB)	$P_{CMAX\_L,c}$ (dBm)	$T(P_{CMAX\_L,C})$ (dB)	$T_{L,c}$ (dB)	Upper limit (dBm)	Lower limit (dBm)
1	23	0	3	6	0	17	5	3	25+TT	12-TT
2	23	0	3	6	0	17	5	3	25+TT	12-TT
3	23	0	3	6	0	17	5	3	25+TT	12-TT
4	23	0	3	6	0	17	5	3	25+TT	12-TT
5	23	0	3	4	0	19	5	3	25+TT	14-TT
6	23	0	3	2	0	20	6	3	25+TT	14-TT
7	23	0	3	4	0	19	5	3	25+TT	14-TT
8	23	0	3	2	0	20	6	3	25+TT	14-TT
9	23	0	3	6	0	17	5	3	25+TT	12-TT
10	23	0	3	6	0	17	5	3	25+TT	12-TT
11	23	0	3	6	0	17	5	3	25+TT	12-TT
12	23	0	3	6	0	17	5	3	25+TT	12-TT
13	23	0	3	4	0	19	5	3	25+TT	14-TT
14	23	0	3	2	0	20	6	3	25+TT	14-TT
15	23	0	3	4	0	19	5	3	25+TT	14-TT
16	23	0	3	2	0	20	6	3	25+TT	14-TT
17	23	0	3	11.5	0	11.5	6	3	25+TT	5.5-TT
18	23	0	3	7	0	16	5	3	25+TT	11-TT
19	23	0	3	5.5	0	17.5	5	3	25+TT	12.5-TT
20	23	0	3	11.5	0	11.5	6	3	25+TT	5.5-TT
21	23	0	3	11.5	0	11.5	6	3	25+TT	5.5-TT
22	23	0	3	7	0	16	5	3	25+TT	11-TT
23	23	0	3	5.5	0	17.5	5	3	25+TT	12.5-TT
24	23	0	3	11.5	0	11.5	6	3	25+TT	5.5-TT
25	23	0	3	4	0	19	5	3	25+TT	14-TT
26	23	0	3	4.5	0	18.5	5	3	25+TT	13.5-TT
27	23	0	3	4	0	19	5	3	25+TT	14-TT
28	23	0	3	4.5	0	18.5	5	3	25+TT	13.5-TT
29	23	0	3	6	0	17	5	3	25+TT	12-TT
30	23	0	3	6	0	17	5	3	25+TT	12-TT
31	23	0	3	6	0	17	5	3	25+TT	12-TT
32	23	0	3	6	0	17	5	3	25+TT	12-TT
33	23	0	3	4	0	19	5	3	25+TT	14-TT
34	23	0	3	2	0	20	6	3	25+TT	14-TT
35	23	0	3	4	0	19	5	3	25+TT	14-TT
36	23	0	3	2	0	20	6	3	25+TT	14-TT
37	23	0	3	6	0	17	5	3	25+TT	12-TT
38	23	0	3	6	0	17	5	3	25+TT	12-TT
39	23	0	3	6	0	17	5	3	25+TT	12-TT
40	23	0	3	6	0	17	5	3	25+TT	12-TT
41	23	0	3	4	0	19	5	3	25+TT	14-TT
42	23	0	3	2	0	20	6	3	25+TT	14-TT
43	23	0	3	4	0	19	5	3	25+TT	14-TT
44	23	0	3	2	0	20	6	3	25+TT	14-TT
45	23	0	3	11.5	0	11.5	6	3	25+TT	5.5-TT
46	23	0	3	7	0	16	5	3	25+TT	11-TT
47	23	0	3	5.5	0	17.5	5	3	25+TT	12.5-TT
48	23	0	3	11.5	0	11.5	6	3	25+TT	5.5-TT
49	23	0	3	11.5	0	11.5	6	3	25+TT	5.5-TT
50	23	0	3	7	0	16	5	3	25+TT	11-TT
51	23	0	3	5.5	0	17.5	5	3	25+TT	12.5-TT
52	23	0	3	11.5	0	11.5	6	3	25+TT	5.5-TT
53	23	0	3	4	0	19	5	3	25+TT	14-TT
54	23	0	3	4.5	0	18.5	5	3	25+TT	13.5-TT
55	23	0	3	4	0	19	5	3	25+TT	14-TT
56	23	0	3	4.5	0	18.5	5	3	25+TT	13.5-TT
57	23	0	3.5	6	0	17	5	3	25+TT	12-TT
58	23	0	3.5	6	0	17	5	3	25+TT	12-TT
59	23	0	3.5	6	0	17	5	3	25+TT	12-TT
60	23	0	3.5	6	0	17	5	3	25+TT	12-TT
61	23	0	3.5	4	0	19	5	3	25+TT	14-TT
62	23	0	3.5	2	0	19.5	5	3	25+TT	14.5-TT

63	23	0	3.5	4	0	19	5	3	25+TT	14-TT
64	23	0	3.5	2	0	19.5	5	3	25+TT	14.5-TT
65	23	0	3.5	6	0	17	5	3	25+TT	12-TT
66	23	0	3.5	6	0	17	5	3	25+TT	12-TT
67	23	0	3.5	6	0	17	5	3	25+TT	12-TT
68	23	0	3.5	6	0	17	5	3	25+TT	12-TT
69	23	0	3.5	4	0	19	5	3	25+TT	14-TT
70	23	0	3.5	2	0	19.5	5	3	25+TT	14.5-TT
71	23	0	3.5	4	0	19	5	3	25+TT	14-TT
72	23	0	3.5	2	0	19.5	5	3	25+TT	14.5-TT
73	23	0	3.5	11.5	0	11.5	6	3	25+TT	5.5-TT
74	23	0	3.5	7	0	16	5	3	25+TT	11-TT
75	23	0	3.5	5.5	0	17.5	5	3	25+TT	12.5-TT
76	23	0	3.5	11.5	0	11.5	6	3	25+TT	5.5-TT
77	23	0	3.5	11.5	0	11.5	6	3	25+TT	5.5-TT
78	23	0	3.5	7	0	16	5	3	25+TT	11-TT
79	23	0	3.5	5.5	0	17.5	5	3	25+TT	12.5-TT
80	23	0	3.5	11.5	0	11.5	6	3	25+TT	5.5-TT
81	23	0	3.5	4	0	19	5	3	25+TT	14-TT
82	23	0	3.5	4.5	0	18.5	5	3	25+TT	13.5-TT
83	23	0	3.5	4	0	19	5	3	25+TT	14-TT
84	23	0	3.5	4.5	0	18.5	5	3	25+TT	13.5-TT
85	23	0	6.5	0	0	16.5	5	3	25+TT	11.5-TT
86	23	0	6.5	0	0	16.5	5	3	25+TT	11.5-TT
87	23	0	6.5	0	0	16.5	5	3	25+TT	11.5-TT
88	23	0	6.5	0	0	16.5	5	3	25+TT	11.5-TT
89	23	0	6.5	0	0	16.5	5	3	25+TT	11.5-TT
90	23	0	6.5	2	0	16.5	5	3	25+TT	11.5-TT
91	23	0	6.5	0	0	16.5	5	3	25+TT	11.5-TT
92	23	0	6.5	2	0	16.5	5	3	25+TT	11.5-TT
93	23	0	6.5	0	0	16.5	5	3	25+TT	11.5-TT
94	23	0	6.5	0	0	16.5	5	3	25+TT	11.5-TT
95	23	0	6.5	0	0	16.5	5	3	25+TT	11.5-TT
96	23	0	6.5	0	0	16.5	5	3	25+TT	11.5-TT
97	23	0	6.5	0	0	16.5	5	3	25+TT	11.5-TT
98	23	0	6.5	2	0	16.5	5	3	25+TT	11.5-TT
99	23	0	6.5	0	0	16.5	5	3	25+TT	11.5-TT
100	23	0	6.5	2	0	16.5	5	3	25+TT	11.5-TT
101	23	0	6.5	11.5	0	11.5	6	3	25+TT	5.5-TT
102	23	0	6.5	7	0	16	5	3	25+TT	11-TT
103	23	0	6.5	0	0	16.5	5	3	25+TT	11.5-TT
104	23	0	6.5	11.5	0	11.5	6	3	25+TT	5.5-TT
105	23	0	6.5	11.5	0	11.5	6	3	25+TT	5.5-TT
106	23	0	6.5	7	0	16	5	3	25+TT	11-TT
107	23	0	6.5	0	0	16.5	5	3	25+TT	11.5-TT
108	23	0	6.5	11.5	0	11.5	6	3	25+TT	5.5-TT
109	23	0	6.5	0	0	16.5	5	3	25+TT	11.5-TT
110	23	0	6.5	4.5	0	16.5	5	3	25+TT	11.5-TT
111	23	0	6.5	0	0	16.5	5	3	25+TT	11.5-TT
112	23	0	6.5	4.5	0	16.5	5	3	25+TT	11.5-TT

NOTE 1: $P_{PowerClass}$ is the maximum UE power specified without taking into account the tolerance.
NOTE 2: TT for each frequency and channel bandwidth is specified in Table 6.2.3.5-0.

For the UE which supports inter-band NR CA configuration, inter-band NR-DC configuration, SUL configuration or inter-band EN-DC configuration, $\Delta T_{IB,c}$ as specified in 6.2A.4.0.2 for NR CA, 6.2B.4.0.2 for NR-DC, clause 6.2C.2 for SUL, or TS 38.521-3 [14] clause 6.2B.4.2 for EN-DC applies. Unless otherwise stated, $\Delta T_{IB,c}$ is set to zero. In case the UE supports more than one of band combinations for CA, NR-DC, SUL or EN-DC, and an operating band belongs to more than one band combinations then

a) When the operating band frequency range is $\leq$ 1 GHz, the applicable additional $\Delta T_{IB,c}$ shall be the average value for all band combinations defined in clause 6.2A.4.0.2, 6.2B.4.0.2, 6.2C.2 in this specification and 6.2B.4.2 in TS 38.521-3 [14], truncated to one decimal place that apply for that operating band among the supported band

combinations. In case there is a harmonic relation between low band UL and high band DL, then the maximum $\Delta T_{IB,c}$ among the different supported band combinations involving such band shall be applied.

b) When the operating band frequency range is > 1 GHz, the applicable additional $\Delta T_{IB,c}$ shall be the maximum value for all band combinations defined in clause 6.2A.4.0.2, 6.2B.4.0.2, 6.2C.2 in this specification and 6.2B.4.2 in TS 38.521-3 [14] for the applicable operating bands.

6.2D.4 Configured transmitted power for UL MIMO

6.2D.4.1 Test purpose

To verify the measured UE configured maximum output power $P_{UMAX,f,c}$ for UL MIMO is within the specified bounds.

6.2D.4.2 Test applicability

This test case applies to all types of NR UE release 15 and forward that support UL MIMO.

6.2D.4.3 Minimum conformance requirements

For UE supporting UL MIMO, the transmitted power is configured per each UE.

The definitions of configured maximum output power $P_{CMAX,c}$, the lower bound $P_{CMAX\_L,c}$, and the higher bound $P_{CMAX\_H,c}$ specified in subclause 6.2.4 shall apply to UE supporting UL MIMO, where

$P_{PowerClass}$, $\Delta P_{PowerClass}$ and $\Delta T_{C,c}$ are specified in subclause 6.2D.1.3;

MPR_c is specified in subclause 6.2D.2.3;

$A\text{-}MPR_c$ is specified in subclause 6.2D.3.3.

The measured configured maximum output power $P_{UMAX,c}$ for serving cell *c* shall be within the following bounds:

$$P_{CMAX\_L,c} - MAX\{T_L, T_{LOW}(P_{CMAX\_L,c})\} \leq P_{UMAX,c} \leq P_{CMAX\_H,c} + T_{HIGH}(P_{CMAX\_H,c})$$

where $T_{LOW}(P_{CMAX\_L,c})$ and $T_{HIGH}(P_{CMAX\_H,c})$ are defined as the tolerance and applies to $P_{CMAX\_L,c}$ and $P_{CMAX\_H,c}$ separately, while T_L is the absolute value of the lower tolerance in Table 6.2D.1.3-1 for the applicable operating band.

For UE with two transmit antenna connectors in closed-loop spatial amultiplexing scheme, the tolerance is specified in Table 6.2D.4.3-1. The requirements shall be met with UL MIMO configurations specified in Table 6.2D.1.3-2.

For UE support uplink full power transmission (ULFPTx) for UL MIMO, the tolerance is specified in Table 6.2D.4.3-1. The requirements shall be met with the PUSCH configurations specified in Table 6.2D.1.3-3, based upon UE's support of uplink full power transmission mode.

Table 6.2D.4.3-1: $P_{CMAX,c}$ tolerance in closed-loop spatial multiplexing scheme

$P_{CMAX,c}$ (dBm)	Tolerance $T_{LOW}(P_{CMAX\_L,c})$ (dB)	Tolerance $T_{HIGH}(P_{CMAX\_H,c})$ (dB)
$P_{CMAX,c}$ =26	3.0	2.0
23 ≤ $P_{CMAX,c}$ < 26	3.0	2.0
22 ≤ $P_{CMAX,c}$ < 23	5.0	2.0
21 ≤ $P_{CMAX,c}$ < 22	5.0	3.0
20 ≤ $P_{CMAX,c}$ < 21	6.0	4.0
16 ≤ $P_{CMAX,c}$ < 20	5.0	
11 ≤ $P_{CMAX,c}$ < 16	6.0	
-40 ≤ $P_{CMAX,c}$ < 11	7.0	

If UE is scheduled for single antenna-port PUSCH transmission by DCI format 0_0 or by DCI format 0_1 for single antenna port codebook based transmission, the requirements in clause 6.2.4.3 apply for the power class as indicated by the *ue-PowerClass* field in capability signalling.

The normative reference for this requirement is TS 38.101-1 [2] clause 6.2D.4.

6.2D.4.4 Test description

6.2D.4.4.1 Initial conditions

Initial conditions are a set of test configurations the UE needs to be tested in and the steps for the SS to take with the UE to reach the correct measurement state.

The initial test configurations consist of environmental conditions, test frequencies, test channel bandwidths and sub-carrier spacing based on NR operating bands specified in table 5.3.5-1. All of these configurations shall be tested with applicable test parameters for each combination of test channel bandwidth and sub-carrier spacing, and are shown in table 6.2D.4.4.1-1. The details of the uplink reference measurement channels (RMCs) are specified in Annexes A.2. Configurations of PDSCH and PDCCH before measurement are specified in Annex C.2.

Table 6.2D.4.4.1-1: Test Configuration Table

Initial Conditions			
Test Environment as specified in TS 38.508-1 [5] subclause 4.1		Normal, TL/VL, TL/VH, TH/VL, TH/VH	
Test Frequencies as specified in TS 38.508-1 [5] subclause 4.3.1		Mid range	
Test Channel Bandwidths as specified in TS 38.508-1 [5] subclause 4.3.1		Lowest, Mid, Highest	
Test SCS as specified in Table 5.3.5-1		Lowest	
Test Parameters for Channel Bandwidths			
Test ID	**Downlink Configuration**	**Uplink Configuration**	
	N/A	**Modulation**	**RB allocation (NOTE 1)**
1		CP-OFDM QPSK	Inner Full
NOTE 1: The specific configuration of each RB allocation is defined in Table 6.1-1.			

Table 6.2D.4.4.1-2: Test Configuration Table for uplink full power transmission (ULFPTx)

Initial Conditions			
Test Environment as specified in TS 38.508-1 [5] subclause 4.1		Normal, TL/VL, TL/VH, TH/VL, TH/VH	
Test Frequencies as specified in TS 38.508-1 [5] subclause 4.3.1		Mid range	
Test Channel Bandwidths as specified in TS 38.508-1 [5] subclause 4.3.1		Lowest, Mid, Highest	
Test SCS as specified in Table 5.3.5-1		Lowest	
Test Parameters for Channel Bandwidths			
Test ID	**Downlink Configuration**	**Uplink Configuration**	
	N/A	**Modulation (NOTE 2)**	**RB allocation (NOTE 1)**
1		DFT-s-OFDM Pi/2 BPSK	Inner Full
2		DFT-s-OFDM QPSK	Inner Full
3[3]		DFT-s-OFDM Pi/2 BPSK	Inner Full
NOTE 1: The specific configuration of each RB allocation is defined in Table 6.1-1. NOTE 2: DFT-s-OFDM PI/2 BPSK test applies only for UEs which supports half Pi BPSK in FR1. NOTE 3: UE operating in TDD mode with PI/2 PBSK modulation and UE indicates support for UE capability *powerBoosting-pi2BPSK* and the IE *powerBoostPi2BPSK* is set to 1 for bands n40, n41, n77, n78 and n79.			

1. Connect the SS to the UE antenna connectors as shown in TS 38.508-1 [5] Annex A, Figure A.3.1.1.2 for TE diagram and section A.3.2 for UE diagram.
2. The parameter settings for the cell are set up according to TS 38.508-1 [5] subclause 4.4.3.
3. Downlink signals are initially set up according to Annex C.0, C.1, C.2, and uplink signals according to Annex G.0, G.1, G.2, G.3.0.
4. The UL Reference Measurement Channel is set according to Table 6.2D.4.4.1-1.
5. Propagation conditions are set according to Annex B.0.

6. Ensure the UE is in state RRC_CONNECTED with generic procedure parameters Connectivity *NR*, Connected without release *On*, Test Mode *On* and Test Loop Function *On* according to TS 38.508-1 [5] clause 4.5. Message contents are defined in clause 6.2D.4.4.3.

6.2D.4.4.2 Test procedure

1. SS sends uplink scheduling information for each UL HARQ process via PDCCH DCI format 0_1 for C_RNTI to schedule the UL RMC according to Table 6.2D.4.4.1-1. Since the UE has no payload and no loopback data to send the UE sends uplink MAC padding bits on the UL RMC. The PDCCH DCI format 0_1 is specified with the condition 2TX_UL_MIMO in 38.508-1 [5] subclause 4.3.6.1.1.2.

2. Send continuously uplink power control "up" commands in every uplink scheduling information to the UE; allow at least 200ms starting from the first TPC command in this step for the UE to reach P_{UMAX} level of the test point.

3. Measure the sum of the mean power of the UE at each transmit antenna connector in the channel bandwidth of the radio access mode. The period of measurement shall be at least the continuous duration of 1ms over all active uplink slots and in the uplink symbols. For TDD slots only slots consisting of only UL symbols are under test.

4. If UE supports ULFPTx, repeat test steps 1~3 with UL RMC according to Table 6.2D.4.4.1-2. The PDCCH DCI format 0_1 is specified with the condition ULFPTx_Mode1, ULFPTx_Mode2 or ULFPTx_ModeFull in 38.508-1 [5] subclause 4.3.6.1.1.2 depending on UE reported capability.

6.2D.4.4.3 Message contents

Message contents are according to TS 38.508-1 [5] subclause 4.6 ensuring Table 4.6.3-182 with the condition 2TX_UL_MIMO and following exception.

Table 6.2D.4.4.3-1: FrequencyInfoUL-SIB: Test point 1

Derivation Path: TS 38.508-1 [5] Table 4.6.3-62 FrequencyInfoUL-SIB			
Information Element	**Value/remark**	**Comment**	**Condition**
p-Max	0		

Table 6.2D.4.4.3-2: FrequencyInfoUL-SIB: Test point 2

Derivation Path: TS 38.508-1 [5] Table 4.6.3-62 FrequencyInfoUL-SIB			
Information Element	**Value/remark**	**Comment**	**Condition**
p-Max	14		

Table 6.2D.4.4.3-3: FrequencyInfoUL-SIB: Test point 3

Derivation Path: TS 38.508-1 [5] Table 4.6.3-62 FrequencyInfoUL-SIB			
Information Element	**Value/remark**	**Comment**	**Condition**
p-Max	18		

6.2D.4.5 Test requirement

The maximum output power measured shall not exceed the values specified in Table 6.2D.4.5-1.

Table 6.2D.4.5-1: P_{CMAX} configured UE output power

Configured transmitted power	
Measured UE output power test point 1	0 dBm ± (7+TT)
Measured UE output power test point 2	14 dBm ± (6+TT)
Measured UE output power test point 3	18 dBm ± (5+TT)
Note 1: TT for each frequency and channel bandwidth is specified in Table 6.2D.4.5-2. Note 2: In addition note 2 in Table 6.2D.1.3-1 shall apply to the tolerances.	

Table 6.2D.4.5-2: Test Tolerance (Configured transmitted power for UL MIMO)

	f ≤ 3.0GHz	3.0GHz < f ≤ 6.0GHz
BW ≤ 40MHz	0.7	1.0
40MHz < BW ≤ 100MHz	1.0	1.0

For the UE which supports inter-band NR CA configuration, inter-band NR-DC configuration, SUL configuration or inter-band EN-DC configuration, $\Delta T_{IB,c}$ as specified in 6.2A.4.0.2 for NR CA, 6.2B.4.0.2 for NR-DC, clause 6.2C.2 for SUL, or TS 38.521-3 [14] clause 6.2B.4.2 for EN-DC applies. Unless otherwise stated, $\Delta T_{IB,c}$ is set to zero. In case the UE supports more than one of band combinations for CA, NR-DC, SUL or EN-DC, and an operating band belongs to more than one band combinations then

a) When the operating band frequency range is ≤ 1 GHz, the applicable additional $\Delta T_{IB,c}$ shall be the average value for all band combinations defined in clause 6.2A.4.0.2, 6.2B.4.0.2, 6.2C.2 in this specification and 6.2B.4.2 in TS 38.521-3 [14], truncated to one decimal place that apply for that operating band among the supported band combinations. In case there is a harmonic relation between low band UL and high band DL, then the maximum $\Delta T_{IB,c}$ among the different supported band combinations involving such band shall be applied.

b) When the operating band frequency range is > 1 GHz, the applicable additional $\Delta T_{IB,c}$ shall be the maximum value for all band combinations defined in clause 6.2A.4.0.2, 6.2B.4.0.2, 6.2C.2 in this specification and 6.2B.4.2 in TS 38.521-3 [14] for the applicable operating bands.

6.2E Transmitter power for V2X

6.2E.1 UE maximum output power for V2X

6.2E.1.0 Minimum conformance requirements

6.2E.1.0.1 General

When NR V2X UE is configured for NR V2X sidelink transmissions non-concurrent with NR uplink transmissions for NR V2X operating bands specified in Table 5.2E.1-1, the allowed NR V2X UE maximum output power is specified in Table 6.2.1.3-1 in clause 6.2.1.

When a UE is configured for NR V2X sidelink transmissions in NR Band n47, the V2X UE shall meet the following additional requirements for transmission within the frequency ranges 5855-5925 MHz:

- The maximum mean power spectral density shall be restricted to 23 dBm/MHz EIRP when the network signaling value NS_33 is indicated.

where the network signaling values are specified in clause 6.2E.3.0.

NOTE: The PSD limit in EIRP shall be converted to conducted requirement depend on the supported post antenna connector gain $G_{post\ connector}$ declared by the UE following the principle described in annex I in [11].

For NR V2X UE supporting SL MIMO, the maximum output power requirements in Table 6.2E.1.0.1-1 shall be met with the SL MIMO configurations specified in Table 6.2D.1.3-2. The maximum output power is defined as the sum of the maximum output power from each UE antenna connector. The period of measurement shall be at least one sub frame (1 ms).

Table 6.2E.1.0.1-1: NR V2X UE Power Class for SL-MIMO

NR band	Class 1 (dBm)	Tolerance (dB)	Class 2 (dBm)	Tolerance (dB)	Class 3 (dBm)	Tolerance (dB)	Class 4 (dBm)	Tolerance (dB)
n38					23	+2/-3		
n47					23	+2/-3		

If the UE transmits on one antenna connector at a time, the requirements in Table 6.2.1.3-1 shall apply to the active antenna connector.

6.2E.1.0.2 UE maximum output power for V2X con-current operation

For the inter-band con-current NR V2X operation, the maximum output power is specified in Table 6.2E.1.0.2-1. The period of measurement shall be at least one sub frame (1ms).

Table 6.2E.1.0.2-1: NR V2X UE Power Class for inter-band con-current combination (two bands)

NR V2X con-current operating band Configuration	Class 1 (dBm)	Tolerance (dB)	Class 2 (dBm)	Tolerance (dB)	Class 3 (dBm)	Tolerance (dB)	Class 4 (dBm)	Tolerance (dB)
V2X_n71A-n47A					23	+2/-3[4]		

NOTE 1: The con-current band combinations are used for NR V2X Service.
NOTE 2: $P_{PowerClass}$ is the maximum UE power specified without taking into account the tolerance
NOTE 3: For inter-band con-current aggregation the maximum power requirement apply to the total transmitted power over all component carriers (per UE).
NOTE 4: [4] refers to the transmission bandwidths (Figure 5.6-1) confined within F_{UL_low} and F_{UL_low} + 4 MHz or F_{UL_high} – 4 MHz and F_{UL_high}, the maximum output power requirement is relaxed by reducing the lower tolerance limit by 1.5 dB

The normative reference for this requirement is TS 38.101-1 [2] clause 6.2E.1

6.2E.1.1 UE maximum output power for V2X / non-concurrent operation

Editor's note: No test points are defined since there is no configuration satisfying MPR=0dB requirements in RAN4.

6.2E.1.1.1 Test purpose

To verify that the error of the UE maximum output power does not exceed the range prescribed by the specified nominal maximum output power and tolerance.

An excess maximum output power has the possibility to interfere to other channels or other systems. A small maximum output power decreases the coverage area.

6.2E.1.1.2 Test applicability

This test case applies to all types of NR UE release 16 and forward that support NR V2X sidelink communication.

NOTE: This test case can't be performed due to lack of appropriate test points.

6.2E.1.1.3 Minimum conformance requirements

The minimum conformance requirements are defined in clause 6.2E.1.0.

6.2E.1.1.4 Test description

6.2E.1.1.4.1 Initial conditions

Initial conditions are a set of test configurations the UE needs to be tested in and the steps for the SS to take with the UE to reach the correct measurement state.

The initial test configurations consist of environmental conditions, test frequencies, test channel bandwidths and sub-carrier spacing based on NR operating bands specified in Table 5.2E.1-1 and Table 5.3.5-1. All of these configurations shall be tested with applicable test parameters for each combination of test channel bandwidth and sub-carrier spacing, and are shown in table 6.2E.1.1.4.1-1. The details of the V2X reference measurement channels (RMCs) are specified in Annex A.7.5 and the GNSS configuration in TS 38.508-1 [5] subclause 4.11.

Table 6.2E.1.1.4.1-1: Test Configuration Table

FFS

NOTE: No test points are defined since there is no configuration satisfying MPR=0dB requirements in RAN4.

1. Connect the SS and GNSS simulator to the UE antenna connectors as shown in TS 38.508-1 [5] Annex A, Figure A.3.1.9.1 for TE diagram and clause A.3.2.7 for UE diagram.

2. The parameter settings for the V2X sidelink transmission over PC5 are pre-configured according to TS 38.508-1 [5] subclause 4.10. Message content exceptions are defined in clause 6.2E.1.1.4.3.
3. The V2X Reference Measurement Channel is set according to Table 6.2E.1.1.4.1-1.
4. The GNSS simulator is configured for Scenario #1: static in Geographical area #1, as defined in TS 38.508-1 [5] Table 4.11.2-2. Geographical area #1 is also pre-configured in the UE.
5. Propagation conditions are set according to Annex B.0.
6. Ensure the UE is in state Out_of_Coverage with generic procedure parameters Sidelink *On*, Test Loop Function *On* with UE test loop mode E closed for *Transmit Mode* according to TS 38.508-1 [5] clause 4.5.

6.2E.1.1.4.2 Test procedure

1. The UE starts to perform the V2X sidelink communication according to SL-V2X-Preconfiguration. Since the UE has no payload and no loopback data to send the UE sends uplink MAC padding bits on the V2X RMC.
2. Measure the mean power of the UE in the channel bandwidth for each test point in table 6.2E.1.1.5-1 according to the test configuration from Table 6.2E.1.1.4.1-1. The period of measurement shall be at least continuous duration of one active sub-frame (1ms) and in the uplink symbols.

6.2E.1.1.4.3 Message contents

Message contents are according to TS 38.508-1 [5] subclause 4.10.

6.2E.1.1.5 Test requirement

The maximum output power, derived in step 2 shall be within the range prescribed by the nominal maximum output power and tolerance in Table 6.2E.1.1.5-1.

Table 6.2E.1.1.5-1: Maximum Output Power test requirement for Power Class 3

NR band	Class 1 (dBm)	Tolerance (dB)	Class 2 (dBm)	Tolerance (dB)	Class 3 (dBm)	Tolerance (dB)
n38					23	±2±TT
n47					23	±2±TT
NOTE 1: $P_{PowerClass}$ is the maximum UE power specified without taking into account the tolerance NOTE 2: Power class 3 is default power class unless otherwise stated NOTE 3: TT for each frequency and channel bandwidth is specified in Table 6.2.1.5-3						

Table 6.2E.1.1.5-2: Test Tolerance (UE maximum output power)

	f ≤ 3.0GHz	4.2GHz < f ≤ 6.0GHz
BW ≤ 40MHz	0.7 dB	1.0 dB

6.2E.1.1D UE maximum output power for V2X / non-concurrent operation / SL-MIMO

Editor's Note:

- No test points are defined since there is no configuration satisfying MPR=0dB requirements in RAN4.
- The test case is not completed due to the following aspects are not yet determined:
  - Uplink RMC is TBD in RAN4
  - Connection diagram is TBD
  - Preconfiguration is TBD in 38.508-1

6.2E.1.1D.1 Test purpose

To verify that the error of the UE maximum output power does not exceed the range prescribed by the specified nominal maximum output power and tolerance.

An excess maximum output power has the possibility to interfere to other channels or other systems. A small maximum output power decreases the coverage area.

6.2E.1.1D.2 Test applicability

This test case applies to all types of NR UE release 16 and forward that support NR V2X sidelink communication and SL-MIMO.

NOTE: This test case can't be performed due to lack of appropriate test points.

6.2E.1.1D.3 Minimum conformance requirements

The minimum conformance requirements are defined in clause 6.2E.1.0.

6.2E.1.1D.4 Test description

6.2E.1.1D.4.1 Initial conditions

Initial conditions are a set of test configurations the UE needs to be tested in and the steps for the SS to take with the UE to reach the correct measurement state.

The initial test configurations consist of environmental conditions, test frequencies, test channel bandwidths and sub-carrier spacing based on NR operating bands specified in Table 5.2E.1-1 and Table 5.3.5-1. All of these configurations shall be tested with applicable test parameters for each combination of test channel bandwidth and sub-carrier spacing, and are shown in table 6.2E.1.1D.4.1-1. The details of the V2X reference measurement channels (RMCs) are specified in Annexes TBD and the GNSS configuration in TS 38.508-1 [5] subclause 4.11.

Table 6.2E.1.1D.4.1-1: Test Configuration Table

FFS

NOTE: No test points are defined since there is no configuration satisfying MPR=0dB requirements in RAN4.

1. Connect the SS and GNSS simulator to the UE antenna connectors as shown in TS 38.508-1 [5] Annex A, Figure TBD for TE diagram and section TBD for UE diagram.
2. The parameter settings for the NR sidelink transmission over PC5 are pre-configured according to TS 38.508-1 [5] subclause 4.10. Message content exceptions are defined in clause 6.2E.1.1D.4.3.
3. The V2X Reference Measurement Channel is set according to Table 6.2E.1.1D.4.1-1.
4. The GNSS simulator is configured for Scenario #1: static in Geographical area #1, as defined in TS 38.508-1 [5] Table 4.11.2-2. Geographical area #1 is also pre-configured in the UE.
5. Propagation conditions are set according to Annex B.0.
6. Ensure the UE is in state 4-A as defined in TS 38.508-1 [4], subclause 4.4A using generic procedure parameter Sidelink (*On*), Cast Type (*Unicast*), GNSS Sync (*On*) and *Transmit Mode with SL-MIMO*.

6.2E.1.1D.4.2 Test procedure

1. The UE starts to perform the NR sidelink communication according to *SL-PreconfigurationNR* with 2-layer MIMO codebook TPMI 0. Since the UE has no payload and no loopback data to send the UE sends uplink MAC padding bits on the NR sidelink RMC.
2. Measure the sum of the mean power of the UE at each transmit antenna connector in the channel bandwidth according to the test configuration from Table 6.2E.1.1D.4.1-1. The period of measurement shall be at least continuous duration of one active sub-frame (1ms) excluding guard symbols.

6.2E.1.1D.4.3 Message contents

Message contents are according to TS 38.508-1 [5] subclause 4.10.

6.2E.1.1D.5 Test requirement

The maximum output power, derived in step 2 shall be within the range prescribed by the nominal maximum output power and tolerance in Table 6.2E.1.1D.5-1.

Table 6.2E.1.1D.5-1: NR V2X UE Maximum Output Power test requirement for SL-MIMO and Power Class 3

NR band	Class 1 (dBm)	Tolerance (dB)	Class 2 (dBm)	Tolerance (dB)	Class 3 (dBm)	Tolerance (dB)	Class 4 (dBm)	Tolerance (dB)
n38					23	+2+TT/-3-TT		
n47					23	+2+TT/-3-TT		

Table 6.2E.1.1D.5-2: Test Tolerance (NR V2X UE maximum output power for SL-MIMO)

	f ≤ 3.0GHz	4.2GHz < f ≤ 6.0GHz
BW ≤ 40MHz	0.7 dB	1.0 dB

6.2E.2 UE maximum output power reduction for V2X

6.2E.2.0 Minimum conformance requirements

6.2E.2.0.1 General

When UE is configured for NR V2X sidelink transmissions non-concurrent with NR uplink transmissions for NR V2X operating bands specified in Table 5.2E.1-1, this clause specifies the allowed Maximum Power Reduction (MPR) power for V2X physical channels and signals due to PSCCH/PSSCH, PSFCH and S-SSB transmission.

6.2E.2.0.2 MPR for Power class 3 V2X UE

For contiguous allocation of PSCCH and PSSCH simultaneous transmission, the allowed MPR for the maximum output power for NR V2X physical channels PSCCH and PSSCH shall be as specified in Table 6.2E.2.0.2-1 for Power class 3 NR V2X UE.

Table 6.2E.2.0.2-1: Maximum Power Reduction (MPR) for power class 3 NR V2X

Modulation		Channel bandwidth/MPR (dB)	
		Outer RB allocations	Inner RB allocations
CP-OFDM	QPSK	≤ 4.5	≤ 2.5
	16QAM	≤ 4.5	≤ 2.5
	64 QAM	≤ 4.5	
	256 QAM	≤ 7.0	

Where the following parameters are defined to specify valid RB allocation ranges for Outer and Inner RB allocations:

N_{RB} is the maximum number of RBs for a given Channel bandwidth and sub-carrier spacing defined in Table 5.3.2-1.

$$RB_{Start,Low} = \max(1, \text{floor}(L_{CRB}/2))$$

where max() indicates the largest value of all arguments and floor(x) is the greatest integer less than or equal to x.

$$RB_{Start,High} = N_{RB} - RB_{Start,Low} - L_{CRB}$$

The RB allocation is an Inner RB allocation if the following conditions are met

$$RB_{Start,Low} \leq RB_{Start} \leq RB_{Start,High}, \text{ and}$$

$$L_{CRB} \leq \text{ceil}(N_{RB}/2)$$

where ceil(x) is the smallest integer greater than or equal to x.

The RB allocation is an Outer RB allocation for all other allocations which are not an Inner RB allocation.

For PSFCH with single RB transmission for PC3 NR V2X UE, the required MPR is defined as follow

$$MPR\_{PSFCH} = 3.5 \text{ dB}$$

For contiguous and non-contiguous allocation for simultaneous PSFCH transmission for PC3 NR V2X UE, the required MPR are specified as follow

$$MPR\_{PSFCH} = CEIL\ \{M_{A\_PSFCH}, 0.5\}$$

Where M_{A_PSFCH} is defined as follows

$$M_{A\_PSFCH} = 7.5 \quad ; 0.00 < N_{Gap}/N_{RB} \leq 0.55$$

$$= 12.0 \quad ; 0.55 < N_{Gap}/N_{RB} \leq 1.0$$

Where,

N_{Gap} is the gap RB amount between RB_{start} and RB_{end} for contiguous and non-contiguous allocation simultaneous PSFCH transmission. ($N_{Gap} = RB_{end} - RB_{start}$)

CEIL{M_A, 0.5} means rounding upwards to closest 0.5dB.

The allowed MPR for the maximum output power for NR V2X physical channels on S-SSB transmission shall be specified in Table 6.2E.2.0.2-2.

Table 6.2E.2.0.2-2: Maximum Power Reduction (MPR) for S-SSB transmission for power class 3 NR V2X

Channel	$MPR_{S\text{-}SSB}$ (dB)	
	Outer RB allocations[1]	Inner RB allocations[1]
S-SSB	≤ 6.0	≤ 2.5

For NR V2X UE with two transmit antenna connectors, the allowed Maximum Power Reduction (MPR) values specified in clause 6.2E.2.0 shall apply to the maximum output power specified in Table 6.2E.1.1.3-1. The requirements shall be met with SL MIMO configurations defined in Table 6.2D.1.3-2. For UE supporting SL MIMO, the maximum output power is defined as the sum of the maximum output power from each UE antenna connector.

For the UE maximum output power modified by MPR, the power limits specified in clause 6.2E.4.0 apply.

6.2E.2.0.3 MPR for Power class 3 V2X con-current operation

For the inter-band con-current NR V2X operation, the allowed maximum power reduction (MPR) for the maximum output power shall be applied per each component carrier. The MPR requirements in clause 6.2.2.3 apply for NR Uu operation in licensed band, and the MPR requirements in in clause 6.2E.2.0 apply for NR sidelink operation in licensed band or Band n47.

The normative reference for this requirement is TS 38.101-1 [2] clause 6.2E.2

6.2E.2.1 UE maximum output power reduction for V2X / non-concurrent operation

Editor's Note: The test case is not completed for PSFCH and PSBCH measurement due to the following aspects are not yet determined:

- Measurement period of PSFCH and PSBCH is FFS.

6.2E.2.1.1 Test purpose

Same test purpose as in 6.2.2.1.

6.2E.2.1.2 Test applicability

This test case applies to all types of UE release 16 and forward that support NR V2X sidelink communication.

NOTE: Test execution is not necessary if TS 38.521-1 6.5E.2.4.1 is executed.

6.2E.2.1.3 Minimum conformance requirements

The minimum conformance requirements are defined in clause 6.2E.2.0.

6.2E.2.1.4 Test description

6.2E.2.1.4.1 Initial conditions

Initial conditions are a set of test configurations the UE needs to be tested in and the steps for the SS to take with the UE to reach the correct measurement state.

The initial test configurations consist of environmental conditions, test frequencies, test channel bandwidths and sub-carrier spacing based on NR operating bands specified in Table 5.2E.1-1 and Table 5.3.5-1. All of these configurations shall be tested with applicable test parameters for each combination of test channel bandwidth and sub-carrier spacing, and are shown in table 6.2E.2.1.4.1-1 to 6.2E.2.1.4.1-3. The details of the V2X reference measurement channels (RMCs) are specified in Annex A.7.5 and the GNSS configuration in TS 38.508-1 [5] subclause 4.11.

Table 6.2E.2.1.4.1-1: Test Configuration Table for contiguous PSCCH and PSSCH allocation

Initial Conditions			
Test Environment as specified in TS 38.508-1 [5] subclause 4.1		Normal, TL/VL, TL/VH, TH/VL, TH/VH	
Test Frequencies as specified in TS 38.508-1 [5] subclause 4.3.1.8		Low range, High range	
Test Channel Bandwidths as specified TS 38.508-1 [5] subclause 4.3.1		Lowest, Highest	
Test SCS as specified in Table 5.3.5-1		Lowest, Highest	
Test Parameters for Channel Bandwidths			
Test ID	**Freq**	**V2X Configuration to Transmit**	
		Modulation	**PSCCH and PSSCH RB allocation (Note 1)**
1	Default	QPSK	Outer_Full
2	Default	QPSK	Inner_Full
3	Default	16QAM	Outer_Full
4	Default	16QAM	Inner_Full
5	Default	64QAM	Outer_Full
6	Default	256QAM	Outer_Full
NOTE 1: The specific configuration of each RB allocation is defined in Table 6.1E-1.			

Table 6.2E.2.1.4.1-2: Test Configuration Table for PSFCH

Initial Conditions		
Test Environment as specified in TS 38.508-1 [5] subclause 4.1		Normal, TL/VL, TL/VH, TH/VL, TH/VH
Test Frequencies as specified in TS 38.508-1 [5] subclause 4.3.1.8		Low range, High range
Test Channel Bandwidths as specified TS 38.508-1 [5] subclause 4.3.1		Lowest, Highest
Test SCS as specified in Table 5.3.5-1		Lowest, Highest
Test Parameters for Channel Bandwidths		
Test ID	**Freq**	**V2X Configuration to Transmit**
		PSFCH RB allocation (Note 1)
1	Low range	PSFCH_1RB_Left
2	High range	PSFCH_1RB_Right
3	Low range	PSFCH_2RB_Left
4	High range	PSFCH_2RB_Right
5	Default	PSFCH_Max_Gap
NOTE 1: The specific configuration of each RB allocation is defined in Table 6.1E-2.		

Table 6.2E.2.1.4.1-3: Test Configuration Table for S-SSB

Initial Conditions		
Test Environment as specified in TS 38.508-1 [5] subclause 4.1		Normal, TL/VL, TL/VH, TH/VL, TH/VH
Test Frequencies as specified in TS 38.508-1 [5] subclause 4.3.1.8		Low range, High range
Test Channel Bandwidths as specified TS 38.508-1 [5] subclause 4.3.1		Lowest, Highest
Test SCS as specified in Table 5.3.5-1		Lowest, Highest
Test Parameters for Channel Bandwidths		
Test ID	**Freq**	**V2X Configuration to Transmit**
		S-SSB RB allocation (Note 1)
1	Low range	S-SSB_Low
2	High range	S-SSB_High
3	Default	S-SSB_Mid
NOTE 1: The specific configuration of each RB allocation is defined in Table 6.1E-3.		

1. Connect the SS and GNSS simulator to the UE antenna connectors as shown in TS 38.508-1 [5] Annex A, Figure A.3.1.9.1 for TE diagram and section A.3.2.7 for UE diagram.
2. The parameter settings for the NR sidelink transmission over PC5 are pre-configured according to TS 38.508-1 [5] subclause 4.10. Message content exceptions are defined in clause 6.2E.2.1.4.3.
3. The V2X Reference Measurement Channel is set according to Table 6.2E.2.1.4.1-1 to Table 6.2E.2.1.4.1-3.
4. The GNSS simulator is configured for Scenario #1: static in Geographical area #1, as defined in TS 38.508-1 [5] Table 4.11.2-2. Geographical area #1 is also pre-configured in the UE.
5. Propagation conditions are set according to Annex B.0.

6.2E.2.1.4.2 Test procedure

Subtest 1: PSCCH/PSSCH

1. Ensure the UE is in state Out_of_Coverage with generic procedure parameters Sidelink *On*, Test Loop Function *On* with UE test loop mode E closed for *Transmit Mode* according to TS 38.508-1 [5] clause 4.5.
2. The UE starts to perform the NR sidelink communication according to *SL-PreconfigurationNR*. Since the UE has no payload and no loopback data to send the UE sends uplink MAC padding bits on the NR sidelink RMC.
3. Measure the mean power of the UE in the channel bandwidth according to the test configuration from Table 6.2E.2.1.4.1-1. The period of measurement shall be at least continuous duration of one active sub-frame (1ms) excluding guard symbols.

Subtest 2: PSFCH

1. Ensure the UE is in state Out_of_Coverage with generic procedure parameters Sidelink *On*, Cast type Unicast, Test Loop Function *On* with UE test loop mode E closed for *Receive Mode* according to TS 38.508-1 [5] clause 4.5.
2. The UE starts to perform the NR sidelink reception according to *SL-PreconfigurationNR*.
3. The UE's PSFCH transmission occasion is on slot n according to Table 6.2E.2.1.4.1-2. SS transmits PSSCH on combination of slot and subchannel as below:

a) Test ID 1: slot n-6, Lowest sub-channel

b) Test ID 2: slot n-3, Highest sub-channel

c) Test ID 3: slot n-6 and n-5, Lowest sub-channel

d) Test ID 4: slot n-4 and n-3, Highest sub-channel

e) Test ID 5: slot n-6, Highest sub-channel and slot n-3, Highest sub-channel

4. Measure the mean power of the UE on slot n in the channel bandwidth according to the test configuration from Table 6.2E.2.1.4.1-2. The period of measurement is FFS.

Subtest 3: S-SSB

1. Ensure the UE is in state Out_of_Coverage with generic procedure parameters Sidelink *On* according to TS 38.508-1 [5] clause 4.5. The UE is synchronized to GNSS,

2. The UE transmits PSBCH according *SL-PreconfigurationNR*.

3. Measure the mean power of the S-SSB in the channel bandwidth according to the test configuration from Table 6.2E.2.1.4.1-3. The period of measurement is FFS.

6.2E.2.1.4.3 Message contents

Message contents are according to TS 38.508-1 [5] subclause 4.10 with the following exceptions.

Table 6.2E.2.1.4.3-1: *SL-ResourcePool* for PSCCH/PSSCH Testing

Derivation Path: TS 38.508-1 [5], Table 4.6.6-25			
Information Element	**Value/remark**	**Comment**	**Condition**
SL-ResourcePool-r16 ::= SEQUENCE {			
sl-PSCCH-Config-r16 CHOICE {			
setup SEQUENCE {			
sl-TimeResourcePSCCH-r16	As defined in Table 6.1E-2		
sl-FreqResourcePSCCH-r16	As defined in Table 6.1E-2		
}			
}			
sl-SubchannelSize-r16	As defined in Table 6.1E-2		
sl-StartRB-Subchannel-r16	As defined in Table 6.1E-2		
sl-NumSubchannel-r16	As defined in Table 6.1E-2		
}			

Table 6.2E.2.1.4.3-2: *SL-ResourcePool* for PSFCH Testing

Derivation Path: TS 38.508-1 [5], Table 4.6.6-25			
Information Element	**Value/remark**	**Comment**	**Condition**
SL-ResourcePool-r16 ::= SEQUENCE {			
sl-PSFCH-Config-r16 CHOICE {			
setup SEQUENCE {			
sl-PSFCH-Period-r16	sl4		
sl-PSFCH-RB-Set-r16	As defined in Table 6.1E-2		
sl-NumMuxCS-Pair-r16	n1		
sl-MinTimeGapPSFCH-r16	sl3		
sl-PSFCH-HopID-r16	Not present	Default frequency hopping ID 0 is used	
sl-PSFCH-CandidateResourceType-r16	startSubCH		
}			
}			
sl-SubchannelSize-r16	As defined in Table 6.1E-2		
sl-StartRB-Subchannel-r16	As defined in Table 6.1E-2		
sl-NumSubchannel-r16	As defined in Table 6.1E-2		
}			

Table 6.2E.2.1.4.3-3: *SL-FreqConfigCommon* for S-SSB Testing

Derivation Path: TS 38.508-1 [5], Table 4.6.6-11			
Information Element	**Value/remark**	**Comment**	**Condition**
SL-FreqConfigCommon-r16 ::= SEQUENCE {			
sl-AbsoluteFrequencySSB-r16	According to section 4.3.1.8 of TS 38.508-1 [5]		
}			

6.2E.2.1.5 Test requirement

The maximum output power, derived in step 3 of Subtest 1, step 4 of Subtest 2 and step 3 of Subtest 3 shall be within the range prescribed by the nominal maximum output power and tolerance in Table 6.2E.2.1.5-1 to Table 6.2E.2.1.5-3.

Table 6.2E.2.1.5-1: UE MPR test requirement for contiguous PSCCH/PSSCH (Bands n38, n47)

Test ID	$P_{PowerClass}$ (dBm)	MPR (dB)	$\Delta T_{C,c}$ (dB)	$P_{CMAX\_L,f,c}$ (dBm)	$T(P_{CMAX\_L,f,c})$ (dB)	Upper limit (dBm)	Lower limit (dBm)
1	23	4.5	0	18.5	4	25.0 + TT	14.5-TT
2	23	2.5	0	20.5	2.5	25.0 + TT	18-TT
3	23	4.5	0	18.5	4	25.0 + TT	14.5-TT
4	23	2.5	0	20.5	2.5	25.0 + TT	18-TT
5	23	4.5	0	18.5	4	25.0 + TT	14.5-TT
6	23	7.0	0	16	5	25.0 + TT	11-TT
NOTE 1: TT for each frequency and channel bandwidth is specified in Table 6.2E.2.1.5-4.							

Table 6.2E.2.1.5-2: UE MPR test requirement for PSFCH (Bands n38, n47)

Test ID	$P_{PowerClass}$ (dBm)	MPR (dB)	$\Delta T_{C,c}$ (dB)	$P_{CMAX\_L,f,c}$ (dBm)	$T(P_{CMAX\_L,f,c})$ (dB)	Upper limit (dBm)	Lower limit (dBm)
1	23	3.5	0	19.5	3.5	25.0 + TT	16-TT
2	23	7.5	0	15.5	5	25.0 + TT	10.5-TT
3	23	7.5	0	15.5	5	25.0 + TT	10.5-TT
4	23	12	0	11	6	25.0 + TT	5-TT
5	23	12	0	11	6	25.0 + TT	5-TT
NOTE 1: TT for each frequency and channel bandwidth is specified in Table 6.2E.2.1.5-4.							

Table 6.2E.2.1.5-3: UE MPR test requirement for S-SSB (Bands n38, n47)

Test ID	$P_{PowerClass}$ (dBm)	MPR (dB)	$\Delta T_{C,c}$ (dB)	$P_{CMAX\_L,f,c}$ (dBm)	$T(P_{CMAX\_L,f,c})$ (dB)	Upper limit (dBm)	Lower limit (dBm)
1	23	6	0	17	5	25.0 + TT	12-TT
2	23	6	0	17	5	25.0 + TT	12-TT
3	23	2.5	0	20.5	2.5	25.0 + TT	18-TT
NOTE 1: TT for each frequency and channel bandwidth is specified in Table 6.2E.2.1.5-4.							

Table 6.2E.2.1.5-4: Test Tolerance (UE maximum output power)

	f ≤ 3.0GHz	4.2GHz < f ≤ 6.0GHz
BW ≤ 40MHz	FFS	FFS

6.2E.2.1D UE maximum output power reduction for V2X / non-concurrent operation / SL-MIMO

Editor's Note: The test case is not completed due to the following aspects are not yet determined:

- Uplink RMC is TBD in RAN4
- Preconfiguration is not complete in 38.508-1
- Test state and generic procedure are TBD in 38.508-1
- Measurement period of PSFCH and PSBCH is FFS.
- Connection diagram for SL-MIMO is TBD

6.2E.2.1D.1 Test purpose

Same test purpose as in 6.2E.2.1.

6.2E.2.1D.2 Test applicability

This test case applies to all types of UE release 16 and forward that support NR V2X sidelink communication and SL-MIMO.

NOTE: Test execution is not necessary if TS 38.521-1 6.5E.2.4.1D is executed.

6.2E.2.1D.3 Minimum conformance requirements

The minimum conformance requirements are defined in clause 6.2E.2.0.

6.2E.2.1D.4 Test description

6.2E.2.1D.4.1 Initial conditions

Initial conditions are a set of test configurations the UE needs to be tested in and the steps for the SS to take with the UE to reach the correct measurement state.

The initial test configurations consist of environmental conditions, test frequencies, test channel bandwidths and sub-carrier spacing based on NR operating bands specified in table 5.2E.1-1 and table 5.3.5-1. All of these configurations shall be tested with applicable test parameters for each combination of test channel bandwidth and sub-carrier spacing, and are shown in table 6.2E.2.1D.4.1-1. The details of the V2X reference measurement channels (RMCs) are specified in Annexes TBD and the GNSS configuration in TS 38.508-1 [5] subclause 4.11.

Table 6.2E.2.1D.4.1-1: Test Configuration Table for contiguous PSCCH and PSSCH allocation

Initial Conditions			
Test Environment as specified in TS 38.508-1 [5] subclause 4.1		Normal, TL/VL, TL/VH, TH/VL, TH/VH	
Test Frequencies as specified in TS 38.508-1 [5] subclause 4.3.1.8		Low range, High range	
Test Channel Bandwidths as specified TS 38.508-1 [5] subclause 4.3.1		Lowest, Highest	
Test SCS as specified in Table 5.3.5-1		Lowest, Highest	
Test Parameters for Channel Bandwidths			
Test ID	**Freq**	**V2X Configuration to Transmit**	
		Modulation	**PSCCH and PSSCH RB allocation (Note 1)**
1	Default	QPSK	Outer_Full
2	Default	QPSK	Inner_Full
3	Default	16QAM	Outer_Full
4	Default	16QAM	Inner_Full
5	Default	64QAM	Outer_Full
6	Default	256QAM	Outer_Full
NOTE 1: The specific configuration of each RB allocation is defined in Table 6.1E-1.			

1. Connect the SS and GNSS simulator to the UE antenna connectors as shown in TS 38.508-1 [5] Annex A, Figure TBD for TE diagram and section TBD for UE diagram.

2. The parameter settings for the NR sidelink transmission over PC5 are pre-configured according to TS 38.508-1 [5] subclause 4.10. Message content exceptions are defined in clause 6.2E.2.1D.4.3.

3. The V2X Reference Measurement Channel is set according to Table 6.2E.2.1D.4.1-1.

4. The GNSS simulator is configured for Scenario #1: static in Geographical area #1, as defined in TS38.508-1 [5] Table 4.11.2-2. Geographical area #1 is also pre-configured in the UE.

5. Propagation conditions are set according to Annex B.0.

6. Ensure the UE is in state 4-A as defined in TS 38.508-1 [4], subclause 4.4A using generic procedure parameter Sidelink (*On*), Cast Type (*Unicast*), GNSS Sync (*On*) and *Transmit Mode with SL-MIMO.*

6.2E.2.1D.4.2 Test procedure

1. The UE starts to perform the NR sidelink communication according to *SL-PreconfigurationNR* with 2-layer MIMO codebook TPMI 0. Since the UE has no payload and no loopback data to send the UE sends uplink MAC padding bits on the NR sidelink RMC.

2. Measure the sum of mean power of the UE at each transmit antenna connector in the channel bandwidth according to the test configuration from Table 6.2E.2.1D.4.1-1. The period of measurement shall be at least continuous duration of one active sub-frame (1ms) excluding guard symbols.

6.2E.2.1D.4.3 Message contents

Message contents are according to TS 38.508-1 [5] subclause 4.10 with the following exceptions.

Table 6.2E.2.1D.4.3-1: *SL-ResourcePool* for PSCCH/PSSCH Testing

Derivation Path: TS 38.508-1 [5], Table 4.6.6-25			
Information Element	**Value/remark**	**Comment**	**Condition**
SL-ResourcePool-r16 ::= SEQUENCE {			
sl-PSCCH-Config-r16 CHOICE {			
setup SEQUENCE {			
sl-TimeResourcePSCCH-r16	As defined in Table 6.1E-2		
sl-FreqResourcePSCCH-r16	As defined in Table 6.1E-2		
}			
}			
sl-SubchannelSize-r16	As defined in Table 6.1E-2		
sl-StartRB-Subchannel-r16	As defined in Table 6.1E-2		
sl-NumSubchannel-r16	As defined in Table 6.1E-2		
}			

6.2E.2.1D.5 Test requirement

The maximum output power, derived in step 3 shall be within the range prescribed by the nominal maximum output power and tolerance in Table 6.2E.2.1D.5-1.

Table 6.2E.2.1D.5-1: UE MPR test requirement for contiguous PSCCH/PSSCH (Bands n38, n47)

Test ID	$P_{PowerClass}$ (dBm)	MPR (dB)	$\Delta T_{C,c}$ (dB)	$P_{CMAX\_L,f,c}$ (dBm)	$T(P_{CMAX\_L,f,c})$ (dB)	TL,c	Upper limit (dBm)	Lower limit (dBm)
1	23	4.5	0	18.5	5	3	25.0 + TT	13.5 + TT
2	23	2.5	0	20.5	6	3	25.0 + TT	14.5 + TT
3	23	4.5	0	18.5	5	3	25.0 + TT	13.5 + TT
4	23	2.5	0	20.5	6	3	25.0 + TT	14.5 + TT
5	23	4.5	0	18.5	5	3	25.0 + TT	13.5 + TT
6	23	7.0	0	16	5	3	25.0 + TT	11.0 + TT
NOTE 1: TT for each frequency and channel bandwidth is specified in Table 6.2E.2.1D.5-2.								

Table 6.2E.2.1D.5-2: Test Tolerance (UE maximum output power)

	f ≤ 3.0GHz	**4.2GHz < f ≤ 6.0GHz**
BW ≤ 40MHz	FFS	FFS

6.2E.2.2 UE maximum output power reduction for V2X / concurrent operation

6.2E.2.2.1 Test purpose

To verify that the reduction of UE transmitted power due to higher order modulations and transmit bandwidth configurations is within the allowed range. An excess maximum output power has the possibility to interfere to other channels or other systems. A small maximum output power decreases the coverage area.

6.2E.2.2.2 Test applicability

This test case applies to all types of NR UE release 16 and forward that support NR V2X sidelink communication.

6.2E.2.2.3 Minimum conformance requirements

The minimum conformance requirements are defined in clause 6.2E.2.0.

6.2E.2.2.4 Test description

6.2E.2.2.4.1 Initial conditions

Initial conditions are a set of test configurations the UE needs to be tested in and the steps for the SS to take with the UE to reach the correct measurement state.

The initial test configurations consist of environmental conditions, test frequencies, test channel bandwidths and sub-carrier spacing based on NR operating bands specified in Table 5.2E.2-1 and Table 5.3.5-1. All of these configurations shall be tested with applicable test parameters for each combination of test channel bandwidth and sub-carrier spacing, and are shown in table 6.2E.2.2.4.1-1. The details of the V2X reference measurement channels (RMCs) are specified in Annexes A.7.5. The details of the uplink reference measurement channels (RMCs) are specified in Annexes A.2. Configurations of PDSCH and PDCCH before measurement are specified in Annex C.2.

Table 6.2E.2.2.4.1-1: Test Configuration Table

Initial Conditions							
Test Environment as specified in TS 38.508-1 [5] subclause 4.1				Normal, TL/VL, TL/VH, TH/VL, TH/VH			
Test Frequencies as specified in TS 38.508-1 [5] subclause 4.3.1				Low range for NR Uu and V2X carrier High range for NR Uu and V2X carrier			
Test Channel Bandwidths as specified TS 38.508-1 [5] subclause 4.3.1				Lowest for NR Uu and V2X carrier Highest for NR Uu and V2X carrier			
Test SCS as specified in Table 5.3.5-1				Lowest for NR Uu and V2X carrier Highest for NR Uu and V2X carrier			
Test Parameters for Channel Bandwidths							
	NR Uu Configuration				**NR V2X Configuration to Transmit**		
	Freq	**Downlink Configuration**	**Uplink Configuration**		**Freq**	**Modulation**	**PSCCH and PSSCH RB allocation (Note 2)**
			Modulation	**RB allocation (NOTE 1)**			
1	Default	N/A	DFT-s-OFDM QPSK	Inner Full	Default	CP-OFDM QPSK	Inner_Full
2	Default		CP-OFDM 256 QAM	Outer Full	Default	CP-OFDM 256QAM	Outer_Full
3	Default		DFT-s-OFDM QPSK	Inner Full	Default	CP-OFDM 256QAM	Outer_Full
4	Default		CP-OFDM 256 QAM	Outer Full	Default	CP-OFDM QPSK	Inner_Full
NOTE 1: The specific configuration of each RB allocation is defined in Table 6.1-1. NOTE 2: The specific configuration of each RB allocation is defined in Table 6.1E-1.							

1. Connect the SS to the UE antenna connectors as shown in TS 38.508-1 [5] Annex A, Figure A.3.1.9.3 for TE diagram and clause A.3.2.7 for UE diagram.

2. The parameter settings for the cell are set up according to TS 38.508-1 [5] clause 4.4.3.

3. Downlink signals are initially set up according to Annex C.0, C.1, C.2, and uplink signals according to Annex G.0, G.1, G.2, G.3.0.

4. The V2X Reference Measurement Channel and NR UL Reference Measurement Channel are set according to Table 6.2E.2.2.4.1-1.

5. Propagation conditions are set according to Annex B.0.

6. Ensure the UE is in state RRC_CONNECTED with generic procedure parameter Connectivity NR, Connected without release on, Test Mode On and Sidelink On according to TS 38.508-1 [5] clause 4.5. Message contents are defined in clause 6.2E.2.2.4.3.

6.2E.2.2.4.2 Test procedure

1. SS sends uplink scheduling information for each UL HARQ process via PDCCH DCI format 0_1 for C_RNTI to schedule the UL RMC according to Table 6.2E.2.2.4.1-1. Since the UE has no payload and no loopback data to send the UE sends uplink MAC padding bits on the UL RMC.

2. Send continuously uplink power control "up" commands in every uplink scheduling information to the UE; allow at least 200ms starting from the first TPC command in this step for the UE to reach PUMAX level.

3. SS sends sidelink scheduling information for each SL-HARQ process via PDCCH DCI format 3_0 for C_RNTI to schedule the Sidelink RMC according to Table 6.2E.2.2.4.1-1. UE is configured to transmit at Pcmax on the sidelink carrier. Since the UE has no payload and no loopback data to send the UE sends MAC padding bits on the Sidelink RMC.

4. Measure the sum of the mean power of the UE at NR Uu carrier and V2X sidelink carrier in the channel bandwidth according to the test configuration from Table 6.2E.2.2.4.1-1. The period of measurement shall be at least continuous duration of one active sub-frame (1ms) excluding guard symbols.

6.2E.2.2.4.3 Message contents

Message contents are according to TS 38.508-1 [5] clause 4.6.

Table 6.2E.2.2.4.3-1: *SL-ResourcePool*

Derivation Path: TS 38.508-1 [5], Table 4.6.6-25			
Information Element	**Value/remark**	**Comment**	**Condition**
SL-ResourcePool-r16 ::= SEQUENCE {			
sl-PSCCH-Config-r16 CHOICE {			
setup SEQUENCE {			
sl-TimeResourcePSCCH-r16	As defined in Table 6.1E-2		
sl-FreqResourcePSCCH-r16	As defined in Table 6.1E-2		
}			
}			
sl-SubchannelSize-r16	As defined in Table 6.1E-2		
sl-StartRB-Subchannel-r16	As defined in Table 6.1E-2		
sl-NumSubchannel-r16	As defined in Table 6.1E-2		
sl-PowerControl-r16 SEQUENCE {			
sl-MaxTransPower-r16	24		
sl-Alpha-PSSCH-PSCCH-r16	Not present		
dl-Alpha-PSSCH-PSCCH-r16	Not present		
sl-P0-PSSCH-PSCCH-r16	Not present		
dl-P0-PSSCH-PSCCH-r16	Not present		
dl-Alpha-PSFCH-r16	Not present		
dl-P0-PSFCH-r16	Not present		
}			
}			

6.2E.2.2.5 Test requirement

The maximum output power, derived in step 4 shall be within the range prescribed by the nominal maximum output power and tolerance in Table 6.2E.2.2.5-1.

Table 6.2E.2.2.5-1: UE MPR test requirement for inter-band con-current NR V2X operation

	$P_{PowerClass,NR}$ (dBm)	MPR (dB)	$\Delta T_{C,c}$ (dB)	$P_{CMAX\_L,c,NR}$ (dBm)	$P_{CMAX\_H,c,NR}$ (dB)	$P_{PowerClass,V2X}$ (dBm)	$P_{CMAX\_H,f,c,V2X}$ (dBm)	P_{CMAX_L} (dBm)	P_{CMAX_H} (dBm)	$T(P_{CMAX\_L})$ (dB)	$T(P_{CMAX\_H})$ (dB)	Upper limit (dBm)	Lower limit (dBm)
1	23	0	0	23	23	23	23	23	26	3	2	28+TT	20-TT
2	23	6.5	0	16.5	23	23	23	16.5	26	5	2	28+TT	11.5-TT
3	23	0	0	23	23	23	23	23	26	3	2	28+TT	20-TT
4	23	6.5	0	16.5	23	23	23	16.5	26	5	2	28+TT	11.5-TT

Table 6.2E.2.2.5-2: Test Tolerance (inter-band con-current NR V2X operation)

	f ≤ 3.0GHz	4.2GHz < f ≤ 6.0GHz
BW ≤ 40MHz	0.7 dB	1.0 dB

6.2F Transmitter power for shared spectrum channel access

6.2F.1 UE maximum output power for shared spectrum channel access

Editor's Note: This test is incomplete. The following aspects are not yet determined:

- No test points are defined since there is no configuration satisfying MPR=0dB requirements in RAN4. Testing with 1.5dB MPR has been covered in [6.2F.2].

- MU and TT for >6GHz (band n96).

- RMC in Annex A.

- Test coverage for UL-MIMO

- Message exceptions

- Test state and generic procedure are TBD in 38.508-1

6.2F.1.1 Test purpose

Same test purpose as in 6.2.1.1

6.2F.1.2 Test applicability

This test case applies to all types of NR UE release 16 and forward that support NR standalone shared spectrum channel access.

6.2F.1.3 Minimum conformance requirements

The following UE Power Classes define the maximum output power for any transmission bandwidth within the channel bandwidth of shared spectrum channel access carrier unless otherwise stated. The period of measurement shall be at least one sub frame (1ms).

Table 6.2F.1.3-1: UE Power Class

NR band	Class 1 (dBm)	Tolerance (dB)	Class 2 (dBm)	Tolerance (dB)	Class 3 (dBm)	Tolerance (dB)	Class 5 (dBm)	Tolerance (dB)
n46							20	+2/-3
n96							20	+2/-3
NOTE 1: $P_{PowerClass}$ is the maximum UE power specified without taking into account the tolerance NOTE 2: Power class 5 is default power class unless otherwise stated.								

The UE operating shall meet the following additional requirements for maximum mean transmission power density specified in Table 6.2F.1.3-2 when NS is signalled and when transmission overlaps with any portion of the specified frequency range. In case transmission overlaps multiple frequency ranges, the lowest power density requirement applies.

Table 6.2F.1.3-2: Additional requirements for transmit power density

NR Band	NS value	Channel bandwidth (MHz)	Frequency range (MHz)	Maximum mean power density (dBm/MHz)
n46	NS_28	20, 40, 60, 80	5150 – 5350	10
			5470 – 5725	
	NS_29	20	5170 – 5330	10
			5490 – 5730	
		40	5170 – 5330	7
			5490 – 5730	
		60, 80	5170 – 5330	4
			5490 – 5730	
	NS_30	20, 40, 60, 80	5150 – 5350	11
			5470 – 5725	
	NS_31	20	5150 - 5230	10
			5250 – 5350	
			5470 – 5725	
			5725 - 5850	
			5230 – 5250	4
		40	5150 - 5230	7
			5250 – 5350	
			5470 – 5725	
			5725 - 5850	
			5230 – 5250	4
		60, 80	5150 - 5230	4
			5250 – 5350	
			5470 – 5725	
			5725 - 5850	
			5230 – 5250	
n96	NS_53	20, 40, 60, 80	5925 – 7125	-1
	NS_54	20, 40, 60, 80	5925 – 6425	17
			6525 – 6875	

The normative reference for this requirement is TS 38.101-1 [2] clause 6.2F.1.

6.2F.1.4 Test description

6.2F.1.4.1 Initial conditions

Initial conditions are a set of test configurations the UE needs to be tested in and the steps for the SS to take with the UE to reach the correct measurement state.

The initial test configurations consist of environmental conditions, test frequencies, test channel bandwidths and sub-carrier spacing based on NR operating bands specified in table 5.3.5-1 that are restricted to shared channel access. All of these configurations shall be tested with applicable test parameters for each combination of test channel bandwidth and sub-carrier spacing, and are shown in table 6.2F.1.4.1-1. The details of the uplink reference measurement channels (RMCs) are specified in Annexes A.2. Configurations of PDSCH and PDCCH before measurement are specified in Annex C.2.

Table 6.2F.1.4.1-1: Test Configuration Table

FFS

1. Connect the SS to the UE antenna connectors as shown in TS 38.508-1 [5] Annex A, Figure A.3.1.1.1 for TE diagram and section A.3.2 for UE diagram.
2. The parameter settings for the cell are set up according to TS 38.508-1 [5] subclause 4.4.3.
3. Downlink signals are initially set up according to Annex C.0, C.1, C.2, and uplink signals according to Annex G.0, G.1, G.2, G.3.0.
4. The UL Reference Measurement Channel is set according to Table 6.2F.1.4.1-1.

5. Propagation conditions are set according to Annex B.0.

6. Ensure the UE is in state RRC_CONNECTED with generic procedure parameters Connectivity *NR*, Connected without release *On,* Test Mode *On* and Test Loop Function *On* according to TS 38.508-1 [5] clause 4.5. Message contents are defined in clause 6.2F.1.4.3.

6.2F.1.4.2 Test procedure

1. SS sends uplink scheduling information for each UL HARQ process via PDCCH DCI format 0_1 for C_RNTI to schedule the UL RMC according to Table 6.2F.1.4.1-1. Since the UE has no payload and no loopback data to send the UE sends uplink MAC padding bits on the UL RMC.

2. Send continuously uplink power control "up" commands in every uplink scheduling information to the UE; allow at least 200ms starting from the first TPC command in this step for the UE to reach P_{UMAX} level.

3. Measure the mean power of the UE in the channel bandwidth of the radio access mode. The period of measurement shall be at least the continuous duration of one active sub-frame (1ms) and in the uplink symbols. Symbols with transient periods are not under test.

6.2F.1.4.3 Message contents

Message contents are according to TS 38.508-1 [5] subclause 4.6 and 5.4 with the following exceptions.

6.2F.1.5 Test requirement

The maximum output power, derived in step 3 shall be within the range prescribed by the nominal maximum output power and tolerance in Table 6.2F.1.5-1.

Table 6.2F.1.5-1: Maximum Output Power test requirement for Power Class 5

NR band	Class 1 (dBm)	Tolerance (dB)	Class 2 (dBm)	Tolerance (dB)	Class 3 (dBm)	Tolerance (dB)	Class 5 (dBm)	Tolerance (dB)
n46							20	+2+TT/-3-TT
n96							20	+2+TT/-3-TT
NOTE 1: $P_{PowerClass}$ is the maximum UE power specified without taking into account the tolerance NOTE 2: Power class 5 is default power class unless otherwise stated.								

Table 6.2F.1.5-2: Test Tolerance (UE maximum output power)

	f ≤ 3.0GHz	3.0GHz < f ≤ 4.2GHz	4.2GHz < f ≤ 5.925GHz	5.925GHz < f ≤ 7.125GHz
BW ≤ 40MHz	0.7 dB	1.0 dB	1.0 dB	TBD
40MHz < BW ≤ 100MHz	1.0 dB	1.0 dB	1.0 dB	TBD

For the UE which supports inter-band NR CA configuration, inter-band NR-DC configuration, SUL configuration or inter-band EN-DC configuration, $\Delta T_{IB,c}$ as specified in 6.2A.4.0.2 for NR CA, 6.2B.4.0.2 for NR-DC, clause 6.2C.2 for SUL, or TS 38.521-3 [14] clause 6.2B.4.2 for EN-DC applies. Unless otherwise stated, $\Delta T_{IB,c}$ is set to zero. In case the UE supports more than one of band combinations for CA, NR-DC, SUL or EN-DC, and an operating band belongs to more than one band combinations then

a) When the operating band frequency range is ≤ 1 GHz, the applicable additional $\Delta T_{IB,c}$ shall be the average value for all band combinations defined in clause 6.2A.4.0.2, 6.2B.4.0.2, 6.2C.2 in this specification and 6.2B.4.2 in TS 38.521-3 [14], truncated to one decimal place that apply for that operating band among the supported band combinations. In case there is a harmonic relation between low band UL and high band DL, then the maximum $\Delta T_{IB,c}$ among the different supported band combinations involving such band shall be applied.

b) When the operating band frequency range is > 1 GHz, the applicable additional $\Delta T_{IB,c}$ shall be the maximum value for all band combinations defined in clause 6.2A.4.0.2, 6.2B.4.0.2, 6.2C.2 in this specification and 6.2B.4.2 in TS 38.521-3 [14] for the applicable operating bands.

6.2F.2 UE maximum output power reduction

FFS

6.2F.3 UE additional maximum output power reduction for shared spectrum access

Editor's Note: This test is incomplete. The following aspects are not yet determined:

- Test points are TBD
- MU and TT for >6GHz (band n96).
- RMC in Annex A.
- Test coverage for UL-MIMO
- Message exceptions
- Test state and generic procedure are TBD in 38.508-1

6.2F.3.1 Test purpose

Same test purpose as in 6.2.3.1

6.2F.3.2 Test applicability

This test case applies to all types of NR UE release 16 and forward that support NR standalone shared spectrum channel access.

6.2F.3.3 Minimum conformance requirements

6.2F.3.3.1 General

Additional emission requirements can be signalled by the network. Each additional emission requirement is associated with a unique network signalling (NS) value indicated in RRC signalling by an NR frequency band number of the applicable operating band and an associated value in the field *additionalSpectrumEmission.* Throughout this specification, the notion of indication or signalling of an NS value refers to the corresponding indication of an NR frequency band number of the applicable operating band, the IE field *freqBandIndicatorNR* and an associated value of *additionalSpectrumEmission* in the relevant RRC information elements [7].

To meet the additional requirements, additional maximum power reduction (A-MPR) is allowed for the maximum output power as specified in Table 6.2F.1.3-1. Unless stated otherwise, the total reduction to UE maximum output power is max (MPR, A-MPR) where MPR is defined in clause 6.2F.2.

Table 6.2F.3.3.1-1 specifies the additional requirements with their associated network signalling values and the allowed A-MPR and applicable operating band(s) for each NS value. The mapping of NR frequency band numbers and values of the *additionalSpectrumEmission* to network signalling labels is specified in Table 6.2F.3.3.1-1A.

Table 6.2F.3.3.1-1: Additional maximum power reduction (A-MPR)

Network signalling label	Requirements (clause)	NR Band	Channel bandwidth (MHz)	Resources blocks (N_{RB})	A-MPR (clause)
NS_01		n46, n96	20, 40, 60, 80		N/A
NS_28		n46	20, 40, 60, 80		6.2F.3.3.2
NS_29		n46	20, 40, 60, 80		6.2F.3.3.3
NS_30		n46	20, 40, 60, 80		6.2F.3.3.4
NS_31		n46	20, 40, 60, 80		6.2F.3.3.5
NS_53		n96	20, 40, 60, 80		6.2F.3.3.6
NS_54		n96	20, 40, 60, 80		6.2F.3.3.7
NOTE 1: The A-MPR shall apply to all active 20 MHz sub-bands contiguously allocated in the channel.					

[The NS_01 label with the field *additionalPmax* [7] absent is default for all NR bands.]

Table 6.2F.3.3.1-1A: Mapping of network signalling label

NR band	Value of additionalSpectrumEmission							
	0	1	2	3	4	5	6	7
n46	NS_01	NS_28	NS_29	NS_30	NS_31			
n96	NS_01	NS_53	NS_54					
NOTE: *additionalSpectrumEmission* corresponds to an information element of the same name defined in clause 6.3.2 of TS 38.331 [6].								

6.2F.3.3.2 A-MPR for NS_28

When "NS_28" is indicated in the cell, the A-MPR is specified in Table 6.2F.3.3.2-1.

Table 6.2F.3.3.2-1: A-MPR for NS_28 power class 5

Pre-coding	Modulation	RB Allocation (Note 2)		RB Allocation (Note 3)
		Full (dB)	Partial (dB)	Full/Partial
DFT-s-ODFM	QPSK	≤ 4.0	≤ 6.0	See Table 6.2F.2.3-1
	16 QAM	≤ 4.5	≤ 6.0	
	64 QAM	≤ 4.5	≤ 6.5	
	256 QAM	≤ 5.5	≤ 6.5	
CP-OFDM	QPSK	≤ 6.0	≤ 7.0	
	16 QAM	≤ 6.0	≤ 7.5	
	64 QAM	≤ 6.5	≤ 7.5	
	256 QAM	≤ 7.0	≤ 7.5	
NOTE 1: Full allocation A-MPR applies when all RB's in a 20 MHz channel or all RB's in all sub-bands for wideband operation are fully allocated and all sub-bands are transmitted. Partial allocation A-MPR applies when one or more RB's in one or more sub-bands are not allocated or when not all transmitted sub-bands for wideband operation are transmitted. NOTE 2: Applicable for 20 MHz channels centred at the nearest NR-ARFCN corresponding to 5160, 5340, 5480, and 5700 MHz, 40 MHz channels cantered at the nearest NR-ARFCN corresponding to 5170, 5190, 5310, 5330, 5490, and 5510 MHz, 60 MHz channels centred at the nearest NR-ARFCN corresponding to 5180, 5200, 5220, 5280, 5300, 5320, 5500, 5520, 5540, 5680 MHz, and 80 MHz channels cantered at the nearest NR-ARFCN corresponding to 5190, 5210, 5290, 5310, 5510, and 5530 MHz. NOTE 3: Applicable for all valid channels other than those enumerated under NOTE 2.				

6.2F.3.3.3 A-MPR for NS_29

When "NS_29" is indicated in the cell, the A-MPR is specified in Table 6.2F.3.3.3-1.

Table 6.2F.3.3.3-1: A-MPR for NS_29 power class 5

Pre-coding	Modulation	Channel bandwidth (Sub-band allocation) / RB Allocation				
		20 MHz	40 MHz		60 MHz, 80 MHz	
		Full/Partial	Full (dB)	Partial (dB)	Full (dB)	Partial (dB)
DFT-s-ODFM	QPSK	See Table 6.2F.2-1	≤ 2.0	≤ 4.0	≤ 4.0	≤ 6.0
	16 QAM		≤ 2.5	≤ 4.0	≤ 4.0	≤ 6.0
	64 QAM		≤ 3.5	≤ 4.0	≤ 4.5	≤ 6.0
	256 QAM		≤ 5.0	≤ 5.5	≤ 5.5	≤ 6.0
CP-OFDM	QPSK		≤ 3.5	≤ 4.5	≤ 4.0	≤ 6.0
	16 QAM		≤ 4.0	≤ 4.5	≤ 4.0	≤ 6.0
	64 QAM		≤ 5.5	≤ 5.0	≤ 5.5	≤ 6.5
	256 QAM		≤ 7.0	≤ 6.5	≤ 7.0	≤ 7.0
NOTE 1: Full allocation A-MPR applies when all RB's in a 20 MHz channel or all RB's in all sub-bands for wideband operation are fully allocated and all sub-bands are transmitted. Partial allocation A-MPR applies when one or more RB's in one or more sub-bands are not allocated but when all sub-bands within the channel are transmitted. When not all sub-bands within the channel are transmitted, the A-MPR associated with the channel bandwidth according to the bandwidth of the contiguously transmitted sub-bands and according to the allocation type applies.						

6.2F.3.3.4 A-MPR for NS_30

When "NS_30" is indicated in the cell, the A-MPR is specified in Table 6.2F.3.3.4-1.

Table 6.2F.3.3.4-1: A-MPR for NS_30 power class 5

Pre-coding	Modulation	RB Allocation (Note 2)		RB Allocation (Note 3)		RB Allocation (Note 4)
		Full (dB)	Partial (dB)	Full (dB)	Partial (dB)	Full/Partial
DFT-s-ODFM	QPSK	≤ 9.0	≤ 15.0	≤ 2.5	≤ 5.0	See Table 6.2F.2.3-1
	16 QAM	≤ 9.0	≤ 15.5	≤ 3.0	≤ 5.0	
	64 QAM	≤ 9.0	≤ 15.5	≤ 4.5	≤ 5.5	
	256 QAM	≤ 9.0	≤ 16.0	≤ 5.5	≤ 5.5	
CP-OFDM	QPSK	≤ 9.0	≤ 14.0	≤ 4.0	≤ 6.0	
	16 QAM	≤ 9.5	≤ 14.5	≤ 4.0	≤ 6.0	
	64 QAM	≤ 9.5	≤ 15.0	≤ 5.5	≤ 6.5	
	256 QAM	≤ 9.5	≤ 15.0	≤ 7.0	≤ 7.0	
NOTE 1: Full allocation A-MPR applies when all RB's in a 20 MHz channel or all RB's in all sub-bands for wideband operation are fully allocated and all sub-bands are transmitted. Partial allocation A-MPR applies when one or more RB's in one or more sub-bands are not allocated or when not all transmitted sub-bands for wideband operation are transmitted. NOTE 2: Applicable for 20 MHz channels centred at the nearest NR-ARFCN corresponding to 5160, 5340, 5480, and 5700 MHz, 40 MHz channels centred at the nearest NR-ARFCN corresponding to 5170, 5190, 5310, 5330, 5490, and 5510 MHz, 60 MHz channels centred at the nearest NR-ARFCN corresponding to 5180, 5200, 5220, 5280, 5300, 5320, 5500, 5520, 5540, 5680 MHz, and 80 MHz channels centred at the nearest NR-ARFCN corresponding to 5190, 5210, 5290, 5310, 5510, and 5530 MHz. NOTE 3: Applicable for 20 MHz channels centred at the nearest NR-ARFCN corresponding to 5180 and 5320 MHz, and 40 MHz channels centred at the nearest NR-ARFCN corresponding to 5230 and 5270 MHz. NOTE 4: Applicable for all valid channels other than those enumerated under NOTE 2 and NOTE 3.						

6.2F.3.3.5 A-MPR for NS_31

When "NS_31" is indicated in the cell, the A-MPR is specified in Table 6.2F.3.3.5-1.

Table 6.2F.3.3.5-1: A-MPR for NS_31 power class 5

Pre-coding	Modulation	RB Allocation (Note 2)	RB Allocation (Note 3)	
		Full/Partial	Full (dB)	Partial (dB)
DFT-s-ODFM	QPSK	See Table 6.2F.2-1	≤ 4.0	≤ 6.5
	16 QAM		≤ 4.0	≤ 6.5
	64 QAM		≤ 4.0	≤ 6.5
	256 QAM		≤ 5.0	≤ 6.5
CP-OFDM	QPSK		≤ 5.5	≤ 6.5
	16 QAM		≤ 5.5	≤ 7.0
	64 QAM		≤ 5.5	≤ 7.0
	256 QAM		≤ 7.0	≤ 7.0

NOTE 1: Full allocation A-MPR applies when all RB's in a 20 MHz channel or all RB's in all sub-bands for wideband operation are fully allocated and all sub-bands are transmitted. Partial allocation A-MPR applies when one or more RB's in one or more sub-bands are not allocated or when not all transmitted sub-bands for wideband operation are transmitted.

NOTE 2: Applicable for 20 MHz channels centred at the nearest NR-ARFCN corresponding to 5180, 5200, 5220, 5280, 5300, 5320, 5500, 5520, 5540, 5560, 5580, 5600, 5620, 5640, 5660, 5680, 5745, 5765, 5785, and 5805 MHz.

NOTE 3: Applicable for all valid channels and bandwidths other than those enumerated in NOTE 2.

6.2F.3.3.6 A-MPR for NS_53

When "NS_53" is indicated in the cell, the A-MPR is specified in Table 6.2F.3.3.6-1.

Table 6.2F.3.3.6-1: A-MPR for NS_53 power class 5

Pre-coding	Modulation	Channel bandwidth (Sub-band allocation) / RB Allocation							
		20 MHz		40 MHz		60 MHz		80 MHz	
		Full (dB)	Partial (dB)	Full (dB)	Partial (dB)	Full (dB)	Partial (dB)	Full (dB)	Partial (dB)
DFT-s-ODFM	QPSK	≤ 9.0	≤ 12.0	≤ 6.5	≤ 8.5	≤ 4.5	≤ 6.5	≤ 3.0	≤ 5.5
	16 QAM	≤ 9.0	≤ 12.0	≤ 6.5	≤ 8.5	≤ 4.5	≤ 6.5	≤ 3.0	≤ 5.5
	64 QAM	≤ 9.0	≤ 12.0	≤ 6.5	≤ 8.5	≤ 4.5	≤ 6.5	≤ 4.0	≤ 5.5
	256 QAM	≤ 9.0	≤ 12.0	≤ 6.5	≤ 8.5	≤ 5.0	≤ 7.0	≤ 5.0	≤ 5.5
CP-OFDM	QPSK	≤ 9.0	≤ 12.0	≤ 6.5	≤ 8.5	≤ 4.5	≤ 6.5	≤ 4.0	≤ 5.5
	16 QAM	≤ 9.0	≤ 12.0	≤ 6.5	≤ 8.5	≤ 4.5	≤ 6.5	≤ 4.0	≤ 5.5
	64 QAM	≤ 9.0	≤ 12.0	≤ 6.5	≤ 8.5	≤ 5.5	≤ 6.5	≤ 5.5	≤ 5.5
	256 QAM	≤ 9.0	≤ 12.0	≤ 7.0	≤ 8.5	≤ 7.0	≤ 7.0	≤ 7.0	≤ 7.0

NOTE 1: Full allocation A-MPR applies when all RB's in a 20 MHz channel or all RB's in all sub-bands for wideband operation are fully allocated and all sub-bands are transmitted. Partial allocation A-MPR applies when one or more RB's in one or more sub-bands are not allocated but when all sub-bands within the channel are transmitted. When not all sub-bands within the channel are transmitted, the A-MPR associated with the channel bandwidth according to the bandwidth of the contiguously transmitted sub-bands and according to the allocation type applies.

6.2F.3.3.7 A-MPR for NS_54

When "NS_54" is indicated in the cell, the A-MPR is specified in Table 6.2F.3.3.7-1.

Table 6.2F.3.3.7-1: A-MPR for NS_54 power class 5

Pre-coding	Modulation	RB Allocation (Note 2)	RB Allocation (Note 3)	
		Full/Partial	Full (dB)	Partial (dB)
DFT-s-ODFM	QPSK	See Table 6.2F.2-1	≤ 2.5	≤ 5.0
	16 QAM		≤ 3.0	≤ 5.0
	64 QAM		≤ 3.5	≤ 5.0
	256 QAM		≤ 5.0	≤ 6.0
CP-OFDM	QPSK		≤ 4.5	≤ 6.0
	16 QAM		≤ 4.5	≤ 6.0
	64 QAM		≤ 5.5	≤ 6.0
	256 QAM		≤ 7.0	≤ 7.0

NOTE 1: Full allocation A-MPR applies when all RB's in a 20 MHz channel or all RB's in all sub-bands for wideband operation are fully allocated and all sub-bands are transmitted. Partial allocation A-MPR applies when one or more RB's in one or more sub-bands are not allocated or when not all transmitted sub-bands for wideband operation are transmitted.

NOTE 2: Applicable for all valid channels and bandwidths other than those enumerated in NOTE 3.

NOTE 3: Applicable for 40 MHz channels centred at the nearest NR-ARFCN corresponding to [5965 MHz], 60 MHz channels centred at the nearest NR-ARFCN corresponding to [5975 and 5995 MHz], and 80 MHz channels centred at the nearest NR-ARFCN corresponding to [5985 MHz].

The normative reference for this requirement is TS 38.101-1 [2] clause 6.2F.3.

6.2F.3.4 Test description

6.2F.3.4.1 Initial conditions

Initial conditions are a set of test configurations the UE needs to be tested in and the steps for the SS to take with the UE to reach the correct measurement state.

The initial test configurations consist of environmental conditions, test frequencies, test channel bandwidths and sub-carrier spacing based on NR operating bands specified in table 5.3.5-1 that are restricted to shared channel access. All of these configurations shall be tested with applicable test parameters for each combination of test channel bandwidth and sub-carrier spacing, and are shown in table 6.2F.3.4.1-1. The details of the uplink reference measurement channels (RMCs) are specified in Annexes A.2. Configurations of PDSCH and PDCCH before measurement are specified in Annex C.2.

Table 6.2F.3.4.1-1: Test Configuration Table

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1. Connect the SS to the UE antenna connectors as shown in TS 38.508-1 [5] Annex A, Figure A.3.1.1.1 for TE diagram and section A.3.2 for UE diagram.
2. The parameter settings for the cell are set up according to TS 38.508-1 [5] subclause 4.4.3.
3. Downlink signals are initially set up according to Annex C.0, C.1, C.2, and uplink signals according to Annex G.0, G.1, G.2, G.3.0.
4. The UL Reference Measurement Channel is set according to Table 6.2F.3.4.1-1.
5. Propagation conditions are set according to Annex B.0.

6. Ensure the UE is in state RRC_CONNECTED with generic procedure parameters Connectivity *NR*, Connected without release *On*, Test Mode *On* and Test Loop Function *On* according to TS 38.508-1 [5] clause 4.5. Message contents are defined in clause 6.2F.3.4.3.

6.2F.3.4.2 Test procedure

1. SS sends uplink scheduling information for each UL HARQ process via PDCCH DCI format 0_1 for C_RNTI to schedule the UL RMC according to Table 6.2F.3.4.1-1. Since the UE has no payload and no loopback data to send the UE sends uplink MAC padding bits on the UL RMC.

2. Send continuously uplink power control "up" commands in every uplink scheduling information to the UE; allow at least 200ms starting from the first TPC command in this step for the UE to reach P_{UMAX} level.

3. Measure the mean power of the UE in the channel bandwidth of the radio access mode. The period of measurement shall be at least the continuous duration of one active sub-frame (1ms) and in the uplink symbols. Symbols with transient periods are not under test.

6.2F.3.4.3 Message contents

Message contents are according to TS 38.508-1 [5] subclause 4.6 and 5.4 with the following exceptions.

Information element additionalSpectrumEmission is set in the *SIB1* as part of the cell broadcast message.

Table 6.2.3.4.3-1: *AdditionalSpectrumEmission*

Derivation Path: TS 38.508-1 [10] clause 4.6.3, Table 4.6.3-1			
Information Element	**Value/remark**	**Comment**	**Condition**
AdditionalSpectrumEmission	1 (NS_28), 2 (NS_29), 3 (NS_30), 4(NS_31)	for band n46	
AdditionalSpectrumEmission	1 (NS_53), 2 (NS_54)	for band n96	

FFS

6.2F.3.5 Test requirement

The maximum output power, derived in step 3 shall be within the range prescribed by the nominal maximum output power and tolerance in Table 6.2F.3.5-1.

Table 6.2F.3.5-1: Test requirement for Power Class 5

Test ID	$P_{PowerClass}$ (dBm)	MPR (dB)	A-MPR (dB)	$\Delta T_{C,c}$ (dB)	$P_{CMAX,c}$ (dBm)	$T(P_{CMAX\_L,c})$ (dB)	$T_{L,c}$ (dB)	Upper limit (dBm)	Lower limit (dBm)
TBD									
NOTE 1: $P_{PowerClass}$ is the maximum UE power specified without taking into account the tolerance. NOTE 2: TT for each frequency and channel bandwidth is specified in Table 6.2F.3.5-2.									

Table 6.2F.3.5-2: Test Tolerance (UE maximum output power)

	f ≤ 3.0GHz	3.0GHz < f ≤ 4.2GHz	4.2GHz < f ≤ 5.925GHz	5.925GHz < f ≤ 7.125GHz
BW ≤ 40MHz	0.7 dB	1.0 dB	1.0 dB	TBD
40MHz < BW ≤ 100MHz	1.0 dB	1.0 dB	1.0 dB	TBD

For the UE which supports inter-band NR CA configuration, inter-band NR-DC configuration, SUL configuration or inter-band EN-DC configuration, $\Delta T_{IB,c}$ as specified in 6.2A.4.0.2 for NR CA, 6.2B.4.0.2 for NR-DC, clause 6.2C.2 for SUL, or TS 38.521-3 [14] clause 6.2B.4.2 for EN-DC applies. Unless otherwise stated, $\Delta T_{IB,c}$ is set to zero. In case the

UE supports more than one of band combinations for CA, NR-DC, SUL or EN-DC, and an operating band belongs to more than one band combinations then

a) When the operating band frequency range is ≤ 1 GHz, the applicable additional $\Delta T_{IB,c}$ shall be the average value for all band combinations defined in clause 6.2A.4.0.2, 6.2B.4.0.2, 6.2C.2 in this specification and 6.2B.4.2 in TS 38.521-3 [14], truncated to one decimal place that apply for that operating band among the supported band combinations. In case there is a harmonic relation between low band UL and high band DL, then the maximum $\Delta T_{IB,c}$ among the different supported band combinations involving such band shall be applied.

b) When the operating band frequency range is > 1 GHz, the applicable additional $\Delta T_{IB,c}$ shall be the maximum value for all band combinations defined in clause 6.2A.4.0.2, 6.2B.4.0.2, 6.2C.2 in this specification and 6.2B.4.2 in TS 38.521-3 [14] for the applicable operating bands.

6.2G Transmitter power for Tx Diversity

6.2G.1 UE maximum output power for Tx Diversity

Editor's Note: The following aspects are either missing or not yet determined:

- No test points are defined for Power Class 1.5 since there is no configuration satisfying MPR=0dB requirements in RAN4. Testing with 0.5dB MPR as recommended by RAN4 has been covered in 6.2G.2.

- The test points for Power Class 1.5 FWA UEs are TBD. The test points for Power Class 1.5 UEs need to be updated.

- Tests for Power Class 3 are FFS.

6.2G.1.1 Test purpose

To verify that the error of the UE maximum output power does not exceed the range prescribed by the specified nominal maximum output power and tolerance.

An excess maximum output power has the possibility to interfere to other channels or other systems. A small maximum output power decreases the coverage area.

6.2G.1.2 Test applicability

This test case applies to all types of NR Power Class 1.5, Power Class 2 reporting Tx diversity UE release 15 and forward.

6.2G.1.3 Minimum conformance requirements

For UE supporting Tx Diversity, the maximum output power as indicated by UE power class in Table 6.2G.1.3-1 is defined as the sum of the maximum output power from both UE antenna connectors. The period of measurement shall be at least one sub frame (1 ms).

Table 6.2G.1.3-1: UE Power Class

NR band	Class 1 (dBm)	Tolerance (dB)	Class 1.5 (dBm)	Tolerance (dB)	Class 2 (dBm)	Tolerance (dB)
n1					26	+2/-3
n3					26	+2/-3[3]
n34					26	+2/-3
n39					26	+2/-3
n41			29[7]	2/-3[3]	26	+2/-3[3]
n77			29[7]	2/-3	26	+2/-3
n78			29[7]	2/-3	26	+2/-3
n79			29[7]	+2/-3	26	+2/-3

NOTE 1: $P_{PowerClass}$ is the maximum UE power specified without taking into account the tolerance.
NOTE 2: Power class 3 is default power class unless otherwise stated.
NOTE 3: Refers to the transmission bandwidths confined within F_{UL_low} and F_{UL_low} + 4 MHz or F_{UL_high} – 4 MHz and F_{UL_high}, the maximum output power requirement is relaxed by reducing the lower tolerance limit by 1.5 dB.
NOTE 4: FFS
NOTE 5: FFS
NOTE 6: Generally, PC1 UE for Band n14 is not targeted for smartphone form factor. The UE power class 1. Requirements for Band n14 are applicable for public safety scenario only.
NOTE 7: Achieved via dual Tx.

If a UE supports a different power class than the default UE power class for the band and the supported power class enables the higher maximum output power than that of the default power class:

- if the field of UE capability *maxUplinkDutyCycle-PC2-FR1* is absent and the field of UE capability *maxUplinkDutyCycle-PC1dot5-MPE-FR1-r16* is absent and the percentage of uplink symbols transmitted in a certain evaluation period is larger than 50% (The exact evaluation period is no less than one radio frame); or

- if the field of UE capability *maxUplinkDutyCycle-PC2-FR1* is not absent and the percentage of uplink symbols transmitted in a certain evaluation period is larger than *maxUplinkDutyCycle-PC2-FR1* as defined in TS 38.306 (The exact evaluation period is no less than one radio frame); or

- if the field of UE capability *maxUplinkDutyCycle-PC1dot5-MPE-FR1-r16* is not absent and half the percentage of uplink symbols transmitted in a certain evaluation period is larger than *maxUplinkDutyCycle-PC1dot5-MPE-FR1-r16* as defined in TS 38.306 (The exact evaluation period is no less than one radio frame); or

- if the IE P-Max as defined in TS 38.331 [7] is provided and set to the maximum output power of the default power class or lower;

  - shall apply all requirements for the default power class to the supported power class and set the configured transmitted power as specified in clause 6.2.4;

- else if the UE does not support a power class with higher maximum output power than PC2; or

- if the field of UE capability *maxUplinkDutyCycle-PC2-FR1* is absent and the field of UE capability *maxUplinkDutyCycle-PC1dot5-MPE-FR1-r16* is absent and the percentage of uplink symbols transmitted in a certain evaluation period is larger than 25% (The exact evaluation period is no less than one radio frame); or

- if the field of UE capability *maxUplinkDutyCycle-PC2-FR1* is not absent and the percentage of uplink symbols transmitted in a certain evaluation period is larger than 0.5**maxUplinkDutyCycle-PC2-FR1* (The exact evaluation period is no less than one radio frame); or

- if the field of UE capability *maxUplinkDutyCycle-PC1dot5-MPE-FR1-r16* is not absent and the percentage of uplink symbols transmitted in a certain evaluation period is larger than *maxUplinkDutyCycle-PC1dot5-MPE-FR1-r16* as defined in TS 38.306 (The exact evaluation period is no less than one radio frame); or

- if the IE P-Max as defined in TS 38.331 [6] is provided and set to the maximum output power of the power class 2 or lower;

- shall apply all requirements for power class 2 to the supported power class and set the configured transmitted power as specified in clause 6.2.4;

- else shall apply all requirements for the supported power class and set the configured transmitted power as specified in clause 6.2.4.

The normative reference for this requirement is TS 38.101-1 [2] clause 6.2.1 and 6.2G.1.

6.2G.1.4 Test description

6.2G.1.4.1 Initial conditions

Initial conditions are a set of test configurations the UE needs to be tested in and the steps for the SS to take with the UE to reach the correct measurement state.

The initial test configurations consist of environmental conditions, test frequencies, test channel bandwidths and sub-carrier spacing based on NR operating bands specified in table 5.3.5-1. All of these configurations shall be tested with applicable test parameters for each combination of test channel bandwidth and sub-carrier spacing, and are shown in Table 6.2G.1.4.1-1 and Table 6.2G.1.4.1-2. The details of the uplink reference measurement channels (RMCs) are specified in Annexes A.2. Configurations of PDSCH and PDCCH before measurement are specified in Annex C.2.

Table 6.2G.1.4.1-1: Test Configuration Table for Power Class 2 indicating TxD support

Initial Conditions			
Test Environment as specified in TS 38.508-1 [5] subclause 4.1		Normal, TL/VL, TL/VH, TH/VL, TH/VH	
Test Frequencies as specified in TS 38.508-1 [5] subclause 4.3.1		Low range, Mid range, High range	
Test Channel Bandwidths as specified in TS 38.508-1 [5] subclause 4.3.1		Lowest, Mid, Highest	
Test SCS as specified in Table 5.3.5-1		Lowest, Highest	
Test Parameters			
Test ID	**Downlink Configuration**	**Uplink Configuration**	
	N/A for maximum output power test case	**Modulation (NOTE 2)**	**RB allocation (NOTE 1)**
1		DFT-s-OFDM PI/2 BPSK	Inner Full
2		DFT-s-OFDM PI/2 BPSK	Inner 1RB Left
3		DFT-s-OFDM PI/2 BPSK	Inner 1RB Right
NOTE 1: The specific configuration of each RB allocation is defined in Table 6.1-1. NOTE 2: DFT-s-OFDM PI/2 BPSK test applies only for UEs which supports half Pi BPSK in FR1. NOTE 3: For *P-Max* test (Step 4 and Step 5 in Section 6.2G.1.4.2) and *maxUplinkDutyCycle* test (Step 6, Step 7, Step 8 and Step 9 in Section 6.2G.1.4.2), only “Normal” test environment, “Low range” test frequencies, “Lowest” Test Channel Bandwidth, “Lowest” test SCS and “Inner Full” RB allocation to be used.			

Table 6.2G.1.4.1-2: Test Configuration Table for Power Class 1.5

NOTE: No test points are defined for Power Class 1.5 since there is no configuration satisfying MPR=0dB requirements in RAN4.

Table 6.2G.1.4.1-3: Test Configuration Table for Power Class 3 indicating TxD support

NOTE: Test points defined for single Tx Power Class 3 in Table Table 6.2.2.3-1 to be reused as test points defined for Power Class 3 indicating TxD support since single Tx Power Class 3 and TxD Power Class 3 share the same MPR requirements.

1. Connect the SS to the UE antenna connectors as shown in TS 38.508-1 [5] Annex A, Figure A.3.1.1.1 for TE diagram and section A.3.2 for UE diagram.

2. The parameter settings for the cell are set up according to TS 38.508-1 [5] subclause 4.4.3.

3. Downlink signals are initially set up according to Annex C.0, C.1, C.2, and uplink signals according to Annex G.0, G.1, G.2, G.3.0.

4. The UL Reference Measurement Channel is set according to Table 6.2G.1.4.1-1 and Table 6.2G.1.4.1-2.

5. Propagation conditions are set according to Annex B.0.

6. Ensure the UE is in state RRC_CONNECTED with generic procedure parameters Connectivity *NR*, Connected without release *On*, Test Mode *On* and Test Loop Function *On* according to TS 38.508-1 [5] clause 4.5. Message contents are defined in clause 6.2G.1.4.3.

6.2G.1.4.2 Test procedure

1. SS sends uplink scheduling information for each UL HARQ process via PDCCH DCI format 0_1 for C_RNTI to schedule the UL RMC according to Table 6.2G.1.4.1-1 and Table 6.2G.1.4.1-2. Since the UE has no payload and no loopback data to send the UE sends uplink MAC padding bits on the UL RMC.

2. Send continuously uplink power control "up" commands in every uplink scheduling information to the UE; allow at least 200ms starting from the first TPC command in this step for the UE to reach P_{UMAX} level.

3. Measure the sum of the mean power of the UE at each antenna connector in the channel bandwidth of the radio access mode. The period of measurement shall be at least the continuous duration of one active sub-frame (1ms) and in the uplink symbols. For TDD symbols with transient periods are not under test.

4. For UEs supporting Power Class 1.5, repeat steps 1~3 on the applicable bands with message exception of P-Max defined in Table 6.2G.1.4.3-2. For P-Max=23, UL RMC shall be set according to Table 6.2G.1.4.1-3. For P-Max=26, UL RMC shall be set according to Table 6.2G.1.4.1-1.

5. For UEs supporting Power Class 2, repeat steps 1~3 on the applicable bands with message exception of P-Max defined in Table 6.2G.1.4.3-2. UL RMC shall be set according to Table 6.2G.1.4.1-3.

6. For UEs supporting Power Class 1.5 with UE capability *maxUplinkDutyCycle-PC1dot5-MPE-FR1-r16*, repeat steps 1~3 on the applicable bands with message exception of TDD UL-DL pattern defined in Table 6.2.1.4.3-4, Table 6.2.1.4.3-5, Table 6.2G.1.4.3-3, Table 6.2G.1.4.3-4, Table 6.2G.1.4.3-5, Table 6.2G.1.4.3-6, Table 6.2G.1.4.3-7, Table 6.2G.1.4.3-8, Table 6.2G.1.4.3-9 and Table 6.2G.1.4.3-10 which the UplinkDutyCycle is closest less than or equal to the *maxUplinkDutyCycle-PC1dot5-MPE-FR1-r16* reported by UE. Before Step 3, wait for at least 10ms for the UE to complete the evaluation period. UL RMC shall be set according to Table 6.2G.1.4.1-2.

7. For UEs supporting Power Class 1.5 with UE capability *maxUplinkDutyCycle-PC1dot5-MPE-FR1-r16*, repeat steps 1~3 on the applicable bands with message exception of TDD UL-DL pattern defined in Table 6.2.1.4.3-4, Table 6.2.1.4.3-5, Table 6.2G.1.4.3-3, Table 6.2G.1.4.3-4, Table 6.2G.1.4.3-5, Table 6.2G.1.4.3-6, Table 6.2G.1.4.3-7, Table 6.2G.1.4.3-8, Table 6.2G.1.4.3-9 and Table 6.2G.1.4.3-10 which the UplinkDutyCycle is closest larger than *maxUplinkDutyCycle-PC1dot5-MPE-FR1-r16* and half the UplinkDutyCycle is no larger than *maxUplinkDutyCycle-PC1dot5-MPE-FR1-r16* reported by UE. Before Step 3, wait for at least 10ms for the UE to complete the evaluation period. UL RMC shall be set according to Table 6.2G.1.4.1-1.

8. For UEs supporting Power Class 1.5 with UE capability *maxUplinkDutyCycle-PC1dot5-MPE-FR1-r16*, repeat steps 1~3 on the applicable bands with message exception of TDD UL-DL pattern defined in Table 6.2.1.4.3-4, Table 6.2.1.4.3-5, Table 6.2G.1.4.3-3, Table 6.2G.1.4.3-4, Table 6.2G.1.4.3-5, Table 6.2G.1.4.3-6, Table 6.2G.1.4.3-7, Table 6.2G.1.4.3-8, Table 6.2G.1.4.3-9 and Table 6.2G.1.4.3-10 which half the UplinkDutyCycle is larger than *maxUplinkDutyCycle-PC1dot5-MPE-FR1-r16* reported by UE. Before Step 3, wait for at least 10ms for the UE to complete the evaluation period. UL RMC shall be set according to Table 6.2G.1.4.1-3.

9. For TDD UEs supporting Power Class 2 with UE capability *maxUplinkDutyCycle-PC2-FR1*, repeat steps 1~3 on the applicable bands with message exception of TDD UL-DL pattern defined in Table 6.2.1.4.3-4 and Table 6.2.1.4.3-5 which the UplinkDutyCycle is closest less than or equal to the *maxUplinkDutyCycle-PC2-FR1* reported by UE. Before Step 3, wait for at least 10ms for the UE to complete the evaluation period.

6.2G.1.4.3 Message contents

Message contents are according to TS 38.508-1 [5] subclause 4.6 and 5.4 with the following exceptions:

UplinkDutyCycle in Table 6.2G.1.4.3-3, Table 6.2G.1.4.3-4, Table 6.2G.1.4.3-5, Table 6.2G.1.4.3-6, Table 6.2G.1.4.3-7, Table 6.2G.1.4.3-8, Table 6.2G.1.4.3-9 and Table 6.2G.1.4.3-10 is the percentage of uplink slots transmitted in one radio frame.

Table 6.2G.1.4.3-1: *PUSCH-Config*

Derivation Path: TS 38.508-1 [5], Table 4.6.3-118 with condition TRANSFORM_PRECODER_ENABLED

Table 6.2G.1.4.3-2: *P-Max* (Step 4)

Derivation Path: TS 38.508-1 [5], Table 4.6.3-89			
Information Element	**Value/remark**	**Comment**	**Condition**
P-Max	23	PC2 UE or PC1.5 UE will fallback to PC3 UE with P-Max=23	PC2 UE or PC1.5 UE
	26	PC1.5 UE will fallback to PC2 UE with P-Max=26	PC1.5 UE

Table 6.2G.1.4.3-3: TDD UL-DL pattern for SCS 15 KHz (*UplinkDutyCycle=10%*)

Parameter		Unit	UL-DL pattern
TDD Slot Configuration pattern (Note 1)			7DS2U
Special Slot Configuration (Note 2)			6D+4G+4U
UL-DL configuration (*tdd-UL-DL-ConfigurationCommon*)	*referenceSubcarrierSpacing*	kHz	15
	dl-UL-TransmissionPeriodicity	ms	10
	nrofDownlinkSlots		7
	nrofDownlinkSymbols		6
	nrofUplinkSlot		2
	nrofUplinkSymbols		4
K1 value (PDSCH-to-HARQ-timing-indicator)			[8] if mod(i,10) = 0 [7] if mod(i,10) = 1 [6] if mod(i,10) = 2 [5] if mod(i,10) = 3
Note 1: D denotes a slot with all DL symbols; S denotes a slot with a mix of DL, UL and guard symbols; U denotes a slot with all UL symbols. The field is for information. Note 2: D, G, U denote DL, guard and UL symbols, respectively. The field is for information. Note 3: i is the slot index per frame; i = {0,…,9} Note 4: There shall be no PUSCH or PUCCH or SRS transmitted in slot 7 and slot 9 to meet the specific UplinkDutyCycle.			

Table 6.2G.1.4.3-4: TDD UL-DL pattern for SCS 15 KHz (*UplinkDutyCycle=20%*)

Parameter		Unit	UL-DL pattern
TDD Slot Configuration pattern (Note 1)			7DS2U
Special Slot Configuration (Note 2)			6D+4G+4U[4]
UL-DL configuration (*tdd-UL-DL-ConfigurationCommon*)	*referenceSubcarrierSpacing*	kHz	15
	dl-UL-TransmissionPeriodicity	ms	10
	nrofDownlinkSlots		7
	nrofDownlinkSymbols		6
	nrofUplinkSlot		2
	nrofUplinkSymbols		4

K1 value (PDSCH-to-HARQ-timing-indicator)		[8] if mod(i,10) = 0 [7] if mod(i,10) = 1 [6] if mod(i,10) = 2 [5] if mod(i,10) = 3 [5] if mod(i,10) = 4 [4] if mod(i,10) = 5 [3] if mod(i,10) = 6 [2] if mod(i,10) = 7
Note 1: D denotes a slot with all DL symbols; S denotes a slot with a mix of DL, UL and guard symbols; U denotes a slot with all UL symbols. The field is for information. Note 2: D, G, U denote DL, guard and UL symbols, respectively. The field is for information. Note 3: i is the slot index per frame; i = {0,…,9} Note 4: There shall be no PUSCH or PUCCH or SRS transmitted in slot 7 to meet the specific UplinkDutyCycle.		

Table 6.2G.1.4.3-5: TDD UL-DL pattern for SCS 15 KHz (*UplinkDutyCycle=30%*)

Parameter		Unit	UL-DL pattern
TDD Slot Configuration pattern (Note 1)			DDDSUDDSUU
Special Slot Configuration (Note 2)			10D+2G+2U
UL-DL configuration1 (*tdd-UL-DL-ConfigurationCommon*)	*referenceSubcarrierSpacing*	kHz	15
	dl-UL-TransmissionPeriodicity	ms	5 dual
	nrofDownlinkSlots		3
	nrofDownlinkSymbols		10
	nrofUplinkSlot		1
	nrofUplinkSymbols		2
UL-DL configuration2 (*tdd-UL-DL-ConfigurationCommon2*)	*referenceSubcarrierSpacing*	kHz	30
	dl-UL-TransmissionPeriodicity	ms	5 dual
	nrofDownlinkSlots		2
	nrofDownlinkSymbols		10
	nrofUplinkSlot		2
	nrofUplinkSymbols		2
K1 value (PDSCH-to-HARQ-timing-indicator)			[4] if mod(i,10) = 0 [3] if mod(i,10) = 1 [6] if mod(i,10) = 2 [5] if mod(i,10) = 3 [4] if mod(i,10) = 5 [3] if mod(i,10) = 6 [2] if mod(i,10) = 7
Note 1: D denotes a slot with all DL symbols; S denotes a slot with a mix of DL, UL and guard symbols; U denotes a slot with all UL symbols. The field is for information. Note 2: D, G, U denote DL, guard and UL symbols, respectively. The field is for information. Note 3: i is the slot index per frame; i = {0,…,9} Note 4: There shall be no PUSCH or PUCCH or SRS transmitted in slot 3 and slot 7 to meet the specific UplinkDutyCycle.			

Table 6.2G.1.4.3-6: TDD UL-DL pattern for SCS 15 KHz (*UplinkDutyCycle=40%*)

Parameter		Unit	UL-DL patte4rn
TDD Slot Configuration pattern (Note 1)			DDSUU
Special Slot Configuration (Note 2)			10D+2G+2U
UL-DL configuration (*tdd-UL-DL-ConfigurationCommon*)	*referenceSubcarrierSpacing*	kHz	15
	dl-UL-TransmissionPeriodicity	ms	5
	nrofDownlinkSlots		2
	nrofDownlinkSymbols		10
	nrofUplinkSlot		2
	nrofUplinkSymbols		2

K1 value (PDSCH-to-HARQ-timing-indicator)		[4] if mod(i,5) = 0 [7] if mod(i,5) = 1 [6] if mod(i,5) = 2
Note 1: D denotes a slot with all DL symbols; S denotes a slot with a mix of DL, UL and guard symbols; U denotes a slot with all UL symbols. The field is for information. Note 2: D, G, U denote DL, guard and UL symbols, respectively. The field is for information. Note 3: i is the slot index per frame; i = {0,…,9} Note 4: There shall be no PUSCH or PUCCH or SRS transmitted in slot 2 and slot 7 to meet the specific UplinkDutyCycle.		

Table6.2G.1.4.3-7: TDD UL-DL pattern for SCS 30 KHz (*UplinkDutyCycle=10%*)

Parameter		Unit	UL-DL pattern
TDD Slot Configuration pattern (Note 1)			7DS2U
Special Slot Configuration (Note 2)			6D+4G+4U
UL-DL configuration (*tdd-UL-DL-ConfigurationCommon*)	*referenceSubcarrierSpacing*	kHz	30
	dl-UL-TransmissionPeriodicity	ms	5
	nrofDownlinkSlots		7
	nrofDownlinkSymbols		6
	nrofUplinkSlot		2
	nrofUplinkSymbols		4
K1 value (PDSCH-to-HARQ-timing-indicator)			[8] if mod(i,10) = 0 [7] if mod(i,10) = 1 [6] if mod(i,10) = 2 [5] if mod(i,10) = 3 [5] if mod(i,10) = 4 [4] if mod(i,10) = 5 [3] if mod(i,10) = 6 [2] if mod(i,10) = 7
Note 1: D denotes a slot with all DL symbols; S denotes a slot with a mix of DL, UL and guard symbols; U denotes a slot with all UL symbols. The field is for information. Note 2: D, G, U denote DL, guard and UL symbols, respectively. The field is for information. Note 3: i is the slot index per frame; i = {0,…,19} Note 4: There shall be no PUSCH or PUCCH or SRS transmitted in slot 7, slot 17, slot 18 and slot 19 to meet the specific UplinkDutyCycle.			

Table6.2G.1.4.3-8: TDD UL-DL pattern for SCS 30 KHz (*UplinkDutyCycle=20%*)

Parameter		Unit	UL-DL pattern
TDD Slot Configuration pattern (Note 1)			7DS2U
Special Slot Configuration (Note 2)			6D+4G+4U
UL-DL configuration (*tdd-UL-DL-ConfigurationCommon*)	*referenceSubcarrierSpacing*	kHz	30
	dl-UL-TransmissionPeriodicity	ms	5
	nrofDownlinkSlots		7
	nrofDownlinkSymbols		6
	nrofUplinkSlot		2
	nrofUplinkSymbols		4

K1 value (PDSCH-to-HARQ-timing-indicator)		[8] if mod(i,10) = 0 [7] if mod(i,10) = 1 [6] if mod(i,10) = 2 [5] if mod(i,10) = 3 [5] if mod(i,10) = 4 [4] if mod(i,10) = 5 [3] if mod(i,10) = 6 [2] if mod(i,10) = 7
Note 1: D denotes a slot with all DL symbols; S denotes a slot with a mix of DL, UL and guard symbols; U denotes a slot with all UL symbols. The field is for information. Note 2: D, G, U denote DL, guard and UL symbols, respectively. The field is for information. Note 3: i is the slot index per frame; i = {0,…,19} Note 4: There shall be no PUSCH or PUCCH or SRS transmitted in slot 7 and slot 17 to meet the specific UplinkDutyCycle.		

Table 6.2G.1.4.3-9: TDD UL-DL pattern for SCS 30 KHz (*UplinkDutyCycle=30%*)

Parameter		Unit	UL-DL pattern
TDD Slot Configuration pattern (Note 1)			DDDSU DDSUU
Special Slot Configuration (Note 2)			10D+2G+2U[4]
UL-DL configuration (*tdd-UL-DL-ConfigurationCommon*)	*referenceSubcarrierSpacing*	kHz	30
	dl-UL-TransmissionPeriodicity	ms	2.5 dual
	nrofDownlinkSlots		3
	nrofDownlinkSymbols		10
	nrofUplinkSlot		1
	nrofUplinkSymbols		2
UL-DL configuration2 (*tdd-UL-DL-ConfigurationCommon2*)	*referenceSubcarrierSpacing*	kHz	30
	dl-UL-TransmissionPeriodicity	ms	2.5 dual
	nrofDownlinkSlots		2
	nrofDownlinkSymbols		10
	nrofUplinkSlot		2
	nrofUplinkSymbols		2
K1 value (PDSCH-to-HARQ-timing-indicator)			[4] if mod(i,10) = 0 [3] if mod(i,10) = 1 [6] if mod(i,10) = 2 [5] if mod(i,10) = 3 [4] if mod(i,10) = 5 [3] if mod(i,10) = 6 [2] if mod(i,10) = 7
Note 1: D denotes a slot with all DL symbols; S denotes a slot with a mix of DL, UL and guard symbols; U denotes a slot with all UL symbols. The field is for information. Note 2: D, G, U denote DL, guard and UL symbols, respectively. The field is for information. Note 3: i is the slot index per frame; i = {0,…,19} Note 4: There shall be no PUSCH or PUCCH or SRS transmitted in slot 3, slot 7, slot 13 and slot 17 to meet the specific UplinkDutyCycle.			

Table 6.2G.1.4.3-10: TDD UL-DL pattern for SCS 30 KHz (*UplinkDutyCycle=40%*)

Parameter		Unit	UL-DL pattern
TDD Slot Configuration pattern (Note 1)			DDSUU
Special Slot Configuration (Note 2)			10D+2G+2U[4]
UL-DL configuration (*tdd-UL-DL-ConfigurationCommon*)	*referenceSubcarrierSpacing*	kHz	30
	dl-UL-TransmissionPeriodicity	ms	2.5 single
	nrofDownlinkSlots		2
	nrofDownlinkSymbols		10
	nrofUplinkSlot		2
	nrofUplinkSymbols		2

K1 value (PDSCH-to-HARQ-timing-indicator)		[4] if mod(i,5) = 0 [7] if mod(i,5) = 1 [6] if mod(i,5) = 2
Note 1: D denotes a slot with all DL symbols; S denotes a slot with a mix of DL, UL and guard symbols; U denotes a slot with all UL symbols. The field is for information. Note 2: D, G, U denote DL, guard and UL symbols, respectively. The field is for information. Note 3: i is the slot index per frame; i = {0,…,19} Note 4: There shall be no PUSCH or PUCCH or SRS transmitted in slot 2, slot 7, slot 12 and slot 17 to meet the specific UplinkDutyCycle.		

6.2G.1.5 Test requirement

The maximum output power, derived in step 3 shall be within the range prescribed by the nominal maximum output power and tolerance in Table 6.2G.1.5-1 for Power Class 2 and Table 6.2G.1.5-2 for Power Class 1.5.

The maximum output power, derived in step 4 shall be within the range prescribed by the nominal maximum output power and tolerance in Table 6.2.1.5-1 for Power Class 3 and Table 6.2G.1.5-1 for Power Class 2.

The maximum output power, derived in step 5 shall be within the range prescribed by the nominal maximum output power and tolerance in Table 6.2.1.5-1 for Power Class 3.

The maximum output power, derived in step 6 shall be within the range prescribed by the nominal maximum output power and tolerance in Table 6.2G.1.5-2 for Power Class 1.5.

The maximum output power, derived in step 7 shall be within the range prescribed by the nominal maximum output power and tolerance in Table 6.2G.1.5-1 for Power Class 2.

The maximum output power, derived in step 8 shall be within the range prescribed by the nominal maximum output power and tolerance in Table 6.2.1.5-1 for Power Class 3.

The maximum output power, derived in step 9 shall be within the range prescribed by the nominal maximum output power and tolerance in Table 6.2G.1.5-1 for Power Class 2.

Table 6.2G.1.5-1: Maximum Output Power test requirement for Power Class 2

NR band	Class 1 (dBm)	Tolerance (dB)	Class 2 (dBm)	Tolerance (dB)	Class 3 (dBm)	Tolerance (dB)
n1			26	+2+TT/-3-TT		
n3			26	+2+TT/-3[3]-TT		
n34			26	+2+TT/-3-TT		
n39			26	+2+TT/-3-TT		
n41			26	+2+TT/-3[3]-TT		
n77			26	+2+TT/-3-TT		
n78			26	+2+TT/-3-TT		
n79			26	+2+TT/-3-TT		
NOTE 1: $P_{PowerClass}$ is the maximum UE power specified without taking into account the tolerance NOTE 2: Power class 3 is default power class unless otherwise stated NOTE 3: Refers to the transmission bandwidths confined within F_{UL_low} and F_{UL_low} + 4 MHz or F_{UL_high} – 4 MHz and F_{UL_high}, the maximum output power requirement is relaxed by reducing the lower tolerance limit by 1.5 dB NOTE 4: TT for each frequency and channel bandwidth is specified in Table 6.2G.1.5-3						

Table 6.2G.1.5-2: Maximum Output Power test requirement for Power Class 1.5

NR band	Class 1.5 (dBm)	Tolerance (dB)	Class 2 (dBm)	Tolerance (dB)	Class 3 (dBm)	Tolerance (dB)
n41	29[5]	+2+TT/-3[3]-TT				
n77	29[5]	+2+TT/-3-TT				
n78	29[5]	+2+TT/-3-TT				
n79	29[5]	+2+TT/-3-TT				
NOTE 1: $P_{PowerClass}$ is the maximum UE power specified without taking into account the tolerance NOTE 2: Power class 3 is default power class unless otherwise stated NOTE 3: Refers to the transmission bandwidths confined within F_{UL_low} and F_{UL_low} + 4 MHz or F_{UL_high} – 4 MHz and F_{UL_high}, the maximum output power requirement is relaxed by reducing the lower tolerance limit by 1.5 dB NOTE 4: TT for each frequency and channel bandwidth is specified in Table 6.2G.1.5-3 NOTE 5: Achieved via dual Tx NOTE 6: No test required since there is no satisfying test points defined.						

Table 6.2G.1.5-3: Test Tolerance (UE maximum output power)

	f ≤ 3.0GHz	3.0GHz < f ≤ 4.2GHz	4.2GHz < f ≤ 6.0GHz
BW ≤ 40MHz	0.7 dB	1.0 dB	1.0 dB
40MHz < BW ≤ 100MHz	1.0 dB	1.0 dB	1.0 dB

For the UE which supports inter-band NR CA configuration, inter-band NR-DC configuration, SUL configuration or inter-band EN-DC configuration, $\Delta T_{IB,c}$ as specified in 6.2A.4.0.2 for NR CA, 6.2B.4.0.2 for NR-DC, clause 6.2C.2 for SUL, or TS 38.521-3 [14] clause 6.2B.4.2 for EN-DC applies. Unless otherwise stated, $\Delta T_{IB,c}$ is set to zero. In case the UE supports more than one of band combinations for CA, NR-DC, SUL or EN-DC, and an operating band belongs to more than one band combinations then

a) When the operating band frequency range is ≤ 1 GHz, the applicable additional $\Delta T_{IB,c}$ shall be the average value for all band combinations defined in clause 6.2A.4.0.2, 6.2B.4.0.2, 6.2C.2 in this specification and 6.2B.4.2 in TS 38.521-3 [14], truncated to one decimal place that apply for that operating band among the supported band combinations. In case there is a harmonic relation between low band UL and high band DL, then the maximum $\Delta T_{IB,c}$ among the different supported band combinations involving such band shall be applied.

b) When the operating band frequency range is > 1 GHz, the applicable additional $\Delta T_{IB,c}$ shall be the maximum value for all band combinations defined in clause 6.2A.4.0.2, 6.2B.4.0.2, 6.2C.2 in this specification and 6.2B.4.2 in TS 38.521-3 [14] for the applicable operating bands.

6.2G.2 UE maximum output power reduction for Tx Diversity

Editor's Note: The following aspects are either missing or not yet determined:

- Tests for Power Class 3 are FFS.

6.2G.2.1 Test purpose

The number of RB identified in Table 6.2D.2.3-1 and Table 6.2D.2.3-2 is based on meeting the requirements for adjacent channel leakage ratio and the maximum power reduction (MPR) due to Cubic Metric (CM).

6.2G.2.2 Test applicability

The requirements of this test apply to all types of NR Power Class 1.5, Power Class 2 reporting TxD UE release 15 and forward.

NOTE: Test execution is not necessary if TS 38.521-1 6.5G.2.3.1 is executed.

6.2G.2.3 Minimum conformance requirements

For UE supporting Tx diversity, the allowed MPR for the maximum output power is specified in Table 6.2.2-1, Table 6.2D.2.3-1, Table 6.2D.2.3-2 and Table 6.2D.2.3-3 for UE power class 3, 2 and 1.5 respectively. For UE power class 1.5, the allowed maximum power reduction (MPR) defined in Table 6.2D.2.3-3 is in accordance with the indicated *modifiedMPR-Behavior* specified in Table L.1-1 for channel bandwidths ≤ 100 MHz. The maximum output power is defined as the sum of the maximum output power at each UE antenna connector.

For the UE maximum output power modified by MPR, the power limits specified in subclause 6.2G.4 apply.

The normative reference for this requirement is TS 38.101-1 [2] clause 6.2G.2.

6.2G.2.4 Test description

6.2G.2.4.1 Initial conditions

Initial conditions are a set of test configurations the UE needs to be tested in and the steps for the SS to take with the UE to reach the correct measurement state.

The initial test configurations consist of environmental conditions, test frequencies, channel bandwidths and sub-carrier spacing based on NR operating bands specified in Table 5.3.5-1. All of these configurations shall be tested with applicable test parameters for each combination of test channel bandwidth and sub-carrier spacing, and are shown in Table 6.2G.2.4.1-1, Table 6.2G.2.4.1-2, and Table 6.2G.2.4.1-3. The details of the uplink reference measurement channels (RMCs) are specified in Annexes A.2. Configurations of PDSCH and PDCCH before measurement are specified in Annex C.2.

Table 6.2G.2.4.1-1: Test Configuration Table for power class 2 (contiguous allocation)

Initial Conditions				
Test Environment as specified in TS 38.508-1 [5] subclause 4.1			Normal, TL/VL, TL/VH, TH/VL, TH/VH	
Test Frequencies as specified in TS 38.508-1 [5] subclause 4.3.1			Low range, High range	
Test Channel Bandwidths as specified in TS 38.508-1 [5] subclause 4.3.1			Lowest, Highest	
Test SCS as specified in Table 5.3.5-1			Lowest, Highest	
Test Parameters for Channel Bandwidths				
Test ID	**Freq**	**Downlink Configuration**	**Uplink Configuration**	
		N/A for Maximum Power Reduction (MPR) test case	**Modulation (NOTE 2)**	**RB allocation (NOTE 1)**
1	Default		DFT-s-OFDM Pi/2 BPSK	Inner Full
2	Low		DFT-s-OFDM Pi/2 BPSK	Edge_1RB_Left
3	High		DFT-s-OFDM Pi/2 BPSK	Edge_1RB_Right
4	Default		DFT-s-OFDM Pi/2 BPSK	Outer Full
5	Default		DFT-s-OFDM QPSK	Inner Full
6	Low		DFT-s-OFDM QPSK	Edge_1RB_Left
7	High		DFT-s-OFDM QPSK	Edge_1RB_Right
8	Default		DFT-s-OFDM QPSK	Outer Full
9	Default		DFT-s-OFDM 16 QAM	Inner Full
10	Low		DFT-s-OFDM 16 QAM	Edge_1RB_Left
11	High		DFT-s-OFDM 16 QAM	Edge_1RB_Right
12	Default		DFT-s-OFDM 16 QAM	Outer Full
13	Low		DFT-s-OFDM 64 QAM	Edge_1RB_Left
14	High		DFT-s-OFDM 64 QAM	Edge_1RB_Right
15	Default		DFT-s-OFDM 64 QAM	Outer Full
16	Low		DFT-s-OFDM 256 QAM	Edge_1RB_Left
17	High		DFT-s-OFDM 256 QAM	Edge_1RB_Right
18	Default		DFT-s-OFDM 256 QAM	Outer Full
19	Default		CP-OFDM QPSK	Inner Full
20	Low		CP-OFDM QPSK	Edge_1RB_Left
21	High		CP-OFDM QPSK	Edge_1RB_Right
22	Default		CP-OFDM QPSK	Outer Full
23	Default		CP-OFDM 16 QAM	Inner Full
24	Low		CP-OFDM 16 QAM	Edge_1RB_Left
25	High		CP-OFDM 16 QAM	Edge_1RB_Right
26	Default		CP-OFDM 16 QAM	Outer Full
27	Low		CP-OFDM 64 QAM	Edge_1RB_Left
28	High		CP-OFDM 64 QAM	Edge_1RB_Right
29	Default		CP-OFDM 64 QAM	Outer Full
30	Low		CP-OFDM 256 QAM	Edge_1RB_Left
31	High		CP-OFDM 256 QAM	Edge_1RB_Right
32	Default		CP-OFDM 256 QAM	Outer Full
NOTE 1: The specific configuration of each RB allocation is defined in Table 6.1-1. NOTE 2: DFT-s-OFDM Pi/2 BPSK test applies only for UEs which supports Pi/2 BPSK in FR1.				

Table 6.2G.2.4.1-2: Test Configuration Table for power class 1.5 (contiguous allocation)

Initial Conditions				
Test Environment as specified in TS 38.508-1 [5] subclause 4.1			Normal, TL/VL, TL/VH, TH/VL, TH/VH	
Test Frequencies as specified in TS 38.508-1 [5] subclause 4.3.1			Low range, High range	
Test Channel Bandwidths as specified in TS 38.508-1 [5] subclause 4.3.1			Lowest, Highest	
Test SCS as specified in Table 5.3.5-1			Lowest, Highest	
Test Parameters for Channel Bandwidths				
Test ID	**Freq**	**Downlink Configuration**	**Uplink Configuration**	
		N/A for Maximum Power Reduction (MPR) test case	**Modulation (NOTE 2)**	**RB allocation (NOTE 1)**
1	Default		DFT-s-OFDM Pi/2 BPSK	Inner Full
2	Low		DFT-s-OFDM Pi/2 BPSK	Edge_1RB_Left
3	High		DFT-s-OFDM Pi/2 BPSK	Edge_1RB_Right
4	Default		DFT-s-OFDM Pi/2 BPSK	Outer Full
5	Default		DFT-s-OFDM QPSK	Inner Full
6	Low		DFT-s-OFDM QPSK	Edge_1RB_Left
7	High		DFT-s-OFDM QPSK	Edge_1RB_Right
8	Default		DFT-s-OFDM QPSK	Outer Full
9	Default		DFT-s-OFDM 16 QAM	Inner Full
10	Low		DFT-s-OFDM 16 QAM	Edge_1RB_Left
11	High		DFT-s-OFDM 16 QAM	Edge_1RB_Right
12	Default		DFT-s-OFDM 16 QAM	Outer Full
13	Default		DFT-s-OFDM_64_QAM	Inner Full
14	Low		DFT-s-OFDM 64 QAM	Edge_1RB_Left
15	High		DFT-s-OFDM 64 QAM	Edge_1RB_Right
16	Default		DFT-s-OFDM 64 QAM	Outer Full
17	Default		DFT-s-OFDM_256_QAM	Inner Full
18	Low		DFT-s-OFDM 256 QAM	Edge_1RB_Left
19	High		DFT-s-OFDM 256 QAM	Edge_1RB_Right
20	Default		DFT-s-OFDM 256 QAM	Outer Full
21	Default		CP-OFDM QPSK	Inner Full
22	Low		CP-OFDM QPSK	Edge_1RB_Left
23	High		CP-OFDM QPSK	Edge_1RB_Right
24	Default		CP-OFDM QPSK	Outer Full
25	Default		CP-OFDM 16 QAM	Inner Full
26	Low		CP-OFDM 16 QAM	Edge_1RB_Left
27	High		CP-OFDM 16 QAM	Edge_1RB_Right
28	Default		CP-OFDM 16 QAM	Outer Full
29	Default		CP-OFDM 64 QAM	Inner Full
30	Low		CP-OFDM 64 QAM	Edge_1RB_Left
31	High		CP-OFDM 64 QAM	Edge_1RB_Right
32	Default		CP-OFDM 64 QAM	Outer Full
33	Default		CP-OFDM 256 QAM	Inner Full
34	Low		CP-OFDM 256 QAM	Edge_1RB_Left
35	High		CP-OFDM 256 QAM	Edge_1RB_Right
36	Default		CP-OFDM 256 QAM	Outer Full
NOTE 1: The specific configuration of each RB allocation is defined in Table 6.1-1. NOTE 2: DFT-s-OFDM Pi/2 BPSK test applies only for UEs which supports Pi/2 BPSK in FR1.				

Table 6.2G.2.4.1-3: Test Configuration Table for power class 2 (almost contiguous allocation)

Initial Conditions				
Test Environment as specified in TS 38.508-1 [5] subclause 4.1			Normal, TL/VL, TL/VH, TH/VL, TH/VH	
Test Frequencies as specified in TS 38.508-1 [5] subclause 4.3.1			Low range, High range	
Test Channel Bandwidths as specified in TS 38.508-1 [5] subclause 4.3.1			Highest	
Test SCS as specified in Table 5.3.5-1			Lowest, Highest	
Test Parameters for Channel Bandwidths				
Test ID	**Freq**	**Downlink Configuration**	**Uplink Configuration**	
		N/A for Maximum Power	**Modulation**	**RB allocation (NOTE 1)**
1	Default		CP-OFDM QPSK	Inner Full
2	Default		CP-OFDM QPSK	Outer Full
3	Default		CP-OFDM 16 QAM	Inner Full
4	Default		CP-OFDM 16 QAM	Outer Full
5	Default		CP-OFDM 64 QAM	Outer Full
6	Default		CP-OFDM 256 QAM	Outer Full
NOTE 1: The specific configuration of each RB allocation is defined in Table 6.2G.2.4.1-4. NOTE 2: Test applies only for UEs which support almost contiguous UL CP-OFDM transmissions. For PC2 UE which support almost contiguous UL CP-OFDM transmissions, test is only applicable for Release 16 and forward.				

Table 6.2G.2.4.1-4: Uplink configuration for almost contiguous allocation

Channel Bandwidth(MHz)	SCS(kHz)	OFDM	Outer Full		Inner Full	
			Cluster1 RB allocations (L_{CRB} @ RB_{start})	Cluster2 RB allocations (L_{CRB} @ RB_{start})	Cluster1 RB allocations (L_{CRB} @ RB_{start})	Cluster2 RB allocations (L_{CRB} @ RB_{start})
25	15	CP	48@0	53@80	N/A	N/A
	30	CP	24@0	25@40	N/A	N/A
	60	CP	12@0	13@18	N/A	N/A
30	15	CP	64@0	64@96	N/A	N/A
	30	CP	32@0	30@48	N/A	N/A
	60	CP	16@0	14@24	N/A	N/A
40	15	CP	80@0	88@128	N/A	N/A
	30	CP	40@0	42@64	N/A	N/A
	60	CP	20@0	19@32	12@12	8@28
50	15	CP	96@0	110@160	48@64	48@144
	30	CP	48@0	53@80	24@32	24@72
	60	CP	24@0	25@40	12@16	12@36
60	15	CP	N/A	N/A	N/A	N/A
	30	CP	64@0	66@96	32@32	16@80
	60	CP	32@0	31@48	16@16	8@40
70	15	CP	N/A	N/A	N/A	N/A
	30	CP	80@0	77@112	32@32	16@80
	60	CP	40@0	37@56	16@16	8@40
80	15	CP	N/A	N/A	N/A	N/A
	30	CP	80@0	89@128	32@32	16@80
	60	CP	40@0	43@64	16@16	8@40
90	15	CP	N/A	N/A	N/A	N/A
	30	CP	96@0	101@144	32@32	16@80
	60	CP	48@0	49@72	16@16	8@40
100	15	CP	N/A	N/A	N/A	N/A
	30	CP	112@0	97@176	48@64	48@144
	60	CP	48@0	55@80	24@32	24@72

1. Connect the SS to the UE antenna connectors as shown in TS 38.508-1 [5] Annex A, Figure A.3.1.2.1 for TE diagram and section A.3.2 for UE diagram.

2. The parameter settings for the cell are set up according to TS 38.508-1 [5] subclause 4.4.3.

3. Downlink signals are initially set up according to Annex C.0, C.1, C.2, and uplink signals according to Annex G.0, G.1, G.2, G.3.0.

4. The UL Reference Measurement Channel is set according to Table 6.2G.2.4.1-1, Table 6.2G.2.4.1-2 and Table 6.2G.2.4.1-3.

5. Propagation conditions are set according to Annex B.0.

6. Ensure the UE is in State RRC_CONNECTED with generic procedure parameters Connectivity *NR*, Connected without release *On*, Test Mode *On* and Test Loop Function *On* according to TS 38.508-1 [5] clause 4.5. Message contents are defined in clause 6.2G.2.4.3.

6.2G.2.4.2 Test procedure

1. SS sends uplink scheduling information for each UL HARQ process via PDCCH DCI format 0_1 for C_RNTI to schedule the UL RMC according to Table 6.2G.2.4.1-1, Table 6.2G.2.4.1-2 and Table 6.2G.2.4.1-3. Since the UE has no payload and no loopback data to send the UE sends uplink MAC padding bits on the UL RMC.

2. Send continuously uplink power control "up" commands in every uplink scheduling information to the UE; allow at least 200ms for the UE to reach P_{UMAX} level.

3. Measure the sum of the mean power of the UE at each antenna connector in the channel bandwidth of the radio access mode. The period of measurement shall be at least the continuous duration of 1ms over consecutive active uplink slots. For TDD, only slots consisting of only UL symbols are under test.

NOTE 1: When switching to DFT-s-OFDM waveform, as specified in the test configuration Table 6.2G.2.4.1-1 and Table 6.2G.2.4.1-2, send an NR RRCReconfiguration message according to TS 38.508-1 [5] clause 4.6.3 Table 4.6.3-118 PUSCH-Config with TRANSFORM_PRECODER_ENABLED condition.

6.2G.2.4.3 Message contents

Message contents are according to TS 38.508-1 [5] subclause 4.6 and 5.4 with the following exceptions:

Table 6.2G.2.4.3-1: *PUSCH-Config*

Derivation Path: TS 38.508-1 [5] subclause 4.6.3 Table 4.6.3-118 PUSCH-Config			
Information Element	**Value/remark**	**Comment**	**Condition**
PUSCH-Config ::= SEQUENCE {			
resourceAllocation	resourceAllocationType0		Almost contiguous allocation
	resourceAllocationType1		Contiguous allocation
}			

6.2G.2.5 Test requirement

The maximum output power, derived in step 3 shall be within the range prescribed by the nominal maximum output power and tolerance in Table 6.2G.2.5-1 to Table 6.2G.2.5-3.

Table 6.2G.2.5-1: UE Power Class test requirements (for Bands n34, n39, n41, n77, n78, n79) for Power Class 2 (contiguous allocation)

Test ID	$P_{PowerClass}$ (dBm)	$\Delta P_{PowerClass}$ (dB)	MPR (dB)	$\Delta T_{C,c}$ (dB)	$P_{CMAX\_L,f,c}$ (dBm)	$T(P_{CMAX\_L,f,c})$ (dB)	$T_{L,c}$ (dB)	Upper limit (dBm)	Lower limit (dBm)
1	26	0	0	0 (1.5²)	26.0 (24.5²)	3.0	3	28.0 + TT	23.0 - TT (21.5 - TT²)
2	26	0	3.5	0 (1.5²)	22.5 (21.0²)	5.0	3	28.0 + TT	17.5 - TT (16.0 - TT²)
3	26	0	3.5	0 (1.5²)	22.5 (21.0²)	5.0	3	28.0 + TT	17.5 - TT (16.0- TT²)
4	26	0	1	0 (1.5²)	25.0 (23.5²)	3.0	3	28.0 + TT	22.0 - TT (20.5- TT²)
5	26	0	0.5	0 (1.5²)	25.5 (24.0²)	3.0	3	28.0 + TT	22.5 - TT (21.0 - TT²)
6	26	0	3.5	0 (1.5²)	22.5 (21.0²)	5.0	3	28.0 + TT	17.5 - TT (16.0 - TT²)
7	26	0	3.5	0 (1.5²)	22.5 (21.0²)	5.0	3	28.0 + TT	17.5 - TT (16.0 - TT²)
8	26	0	2	0 (1.5²)	24.0 (22.5²)	3.0 (5.0²)	3	28.0 + TT	21.0 - TT (17.5 - TT²)
9	26	0	1.5	0 (1.5²)	24.5 (23.0²)	3.0	3	28.0 + TT	21.5 - TT (20.0 - TT²)
10	26	0	3.5	0 (1.5²)	22.5 (21.0²)	5.0	3	28.0 + TT	17.5 - TT (16.0 - TT²)
11	26	0	3.5	0 (1.5²)	22.5 (21.0²)	5.0	3	28.0 + TT	17.5 - TT (16.0 - TT²)
12	26	0	2.5	0 (1.5²)	23.5 (22.0²)	3.0 (5.0²)	3	28.0 + TT	20.5 - TT (17.0 - TT²)
13	26	0	3.5	0 (1.5²)	22.5 (21.0²)	5.0	3	28.0 + TT	17.5 - TT (16.0 - TT²)
14	26	0	3.5	0 (1.5²)	22.5 (21.0²)	5.0	3	28.0 + TT	17.5 - TT (16.0- TT²)
15	26	0	3	0 (1.5²)	23.0 (21.5²)	3.0 (5.0²)	3	28.0 + TT	20.0 - TT (16.5 - TT²)
16	26	0	5.5	0 (1.5²)	20.5 (19.0²)	6.0 (5.0²)	3	28.0 + TT	14.5 - TT (14.0 - TT²)
17	26	0	5.5	0 (1.5²)	20.5 (19.0²)	6.0 (5.0²)	3	28.0 + TT	14.5 - TT (14.0 - TT²)
18	26	0	5.5	0 (1.5²)	20.5 (19.0²)	6.0 (5.0²)	3	28.0 + TT	14.5 - TT (14.0 - TT²)
19	26	0	2	0 (1.5²)	24.0 (22.5²)	3.0 (5.0²)	3	28.0 + TT	21.0 - TT (17.5 - TT²)
20	26	0	4.0	0 (1.5²)	22.0 (20.5²)	5.0 (6.0²)	3	28.0 + TT	17.0 - TT (14.5 - TT²)
21	26	0	4.0	0 (1.5²)	22.0 (20.5²)	5.0 (6.0²)	3	28.0 + TT	17.0 - TT (14.5- TT²)
22	26	0	3.5	0 (1.5²)	22.5 (21.0²)	5.0	3	28.0 + TT	17.5 - TT (16.0 - TT²)
23	26	0	2.5	0 (1.5²)	23.5 (22.0²)	3.0 (5.0²)	3	28.0 + TT	20.5 - TT (17.0 - TT²)
24	26	0	4.0	0 (1.5²)	22.0 (20.5²)	5.0 (6.0²)	3	28.0 + TT	17.0 - TT (14.5 - TT²)

Test ID	$P_{PowerClass}$ (dBm)	$\Delta P_{PowerClass}$ (dB)	MPR (dB)	$\Delta T_{C,c}$ (dB)	$P_{CMAX\_L,f,c}$ (dBm)	$T(P_{CMAX\_L,f,c})$ (dB)	$T_{L,c}$ (dB)	Upper limit (dBm)	Lower limit (dBm)
25	26	0	4.0	0 (1.5[2])	22.0 (20.5[2])	5.0 (6.0[2])	3	28.0 + TT	17.0 - TT (14.5 - TT[2])
26	26	0	3.5	0 (1.5[2])	22.5 (21.0[2])	5.0	3	28.0 + TT	17.5 - TT (16.0 - TT[2])
27	26	0	4.5	0 (1.5[2])	21.5 (20.0[2])	5.0 (6.0[2])	3	28.0 + TT	16.5 - TT (14.0 - TT[2])
28	26	0	4.5	0 (1.5[2])	21.5 (20.0[2])	5.0 (6.0[2])	3	28.0 + TT	16.5 - TT (14.0 - TT[2])
29	26	0	4.5	0 (1.5[2])	21.5 (20.0[2])	5.0 (6.0[2])	3	28.0 + TT	16.5 - TT (14.0 - TT[2])
30	26	0	8.0	0 (1.5[2])	18.0 (16.5[2])	5.0	3	28.0 + TT	13.0 - TT (11.5 - TT[2])
31	26	0	8.0	0 (1.5[2])	18.0 (16.5[2])	5.0	3	28.0 + TT	13.0 - TT (11.5 - TT[2])
32	26	0	8.0	0 (1.5[2])	18.0 (16.5[2])	5.0	3	28.0 + TT	13.0 - TT (11.5 - TT[2])

NOTE 1: $P_{PowerClass}$ is the maximum UE power specified without taking into account the tolerance.
NOTE 2: For Band n41, transmission bandwidths confined within F_{UL_low} and F_{UL_low} + 4 MHz or F_{UL_high} – 4 MHz and F_{UL_high}.
NOTE 3: TT for each frequency and channel bandwidth is specified in Table 6.2G.2.5-4.

Table 6.2G.2.5-2: UE Power Class test requirements (for Band n41, n77, n78, n79) for Power Class 1.5 (contiguous allocation)

Test ID	$P_{PowerClass}$ (dBm)	$\Delta P_{PowerClass}$ (dB)	MPR (dB)	$\Delta T_{C,c}$ (dB)	$P_{CMAX\_L,f,c}$ (dBm)	$T(P_{CMAX\_L,f,c})$ (dB)	$T_{L,c}$ (dB)	Upper limit (dBm)	Lower limit (dBm)
1	29	0	0.5	0 (1.5²)	28.5 (27.0²)	3.0	3	31.0 + TT	25.5 - TT (24.0 - TT²)
2	29	0	6	0 (1.5²)	23.0 (21.5²)	3.0 (5.0²)	3	31.0 + TT	20.0 - TT (16.5 - TT²)
3	29	0	6	0 (1.5²)	23.0 (21.5²)	3.0 (5.0²)	3	31.0 + TT	20.0 - TT (16.5 - TT²)
4	29	0	2	0 (1.5²)	27.0 (25.5²)	3.0	3	31.0 + TT	24.0 - TT (22.5 - TT²)
5	29	0	0.5	0 (1.5²)	28.5 (27.0²)	3.0	3	31.0 + TT	25.5 - TT (24.0 - TT²)
6	29	0	6.5	0 (1.5²)	22.5 (21.0²)	5.0	3	31.0 + TT	17.5 - TT (16.0 - TT²)
7	29	0	6.5	0 (1.5²)	22.5 (21.0²)	5.0	3	31.0 + TT	17.5 - TT (16.0 - TT²)
8	29	0	2.5	0 (1.5²)	26.5 (25.0²)	3.0	3	31.0 + TT	23.5 - TT (22.0 - TT²)
9	29	0	1.5	0 (1.5²)	27.5 (26.0²)	3.0	3	31.0 + TT	24.5 - TT (23.0 - TT²)
10	29	0	6.5	0 (1.5²)	22.5 (21.0²)	5.0	3	31.0 + TT	17.5 - TT (16.0 - TT²)
11	29	0	6.5	0 (1.5²)	22.5 (21.0²)	5.0	3	31.0 + TT	17.5 - TT (16.0 - TT²)
12	29	0	3.5	0 (1.5²)	25.5 (24.0²)	3.0	3	31.0 + TT	22.5 - TT (21.0 - TT²)
13	29	0	3.5	0 (1.5²)	25.5 (24.0²)	3.0	3	31.0 + TT	22.5 - TT (21.0 - TT²)
14	29	0	6.5	0 (1.5²)	22.5 (21.0²)	5.0	3	31.0 + TT	17.5 - TT (16.0 - TT²)
15	29	0	6.5	0 (1.5²)	22.5 (21.0²)	5.0	3	31.0 + TT	17.5 - TT (16.0 - TT²)
16	29	0	4	0 (1.5²)	25.0 (23.5²)	3.0	3	31.0 + TT	22.0 - TT (20.5 - TT²)
17	29	0	6.5	0 (1.5²)	22.5 (21.0²)	5.0	3	31.0 + TT	17.5 - TT (16.0 - TT²)
18	29	0	6.5	0 (1.5²)	22.5 (21.0²)	5.0	3	31.0 + TT	17.5 - TT (16.0 - TT²)
19	29	0	6.5	0 (1.5²)	22.5 (21.0²)	5.0	3	31.0 + TT	17.5 - TT (16.0 - TT²)
20	29	0	6.5	0 (1.5²)	22.5 (21.0²)	5.0	3	31.0 + TT	17.5 - TT (16.0 - TT²)
21	29	0	2	0 (1.5²)	27.0 (25.5²)	3.0	3	31.0 + TT	24.0 - TT (22.5 - TT²)
22	29	0	6.5	0 (1.5²)	22.5 (21.0²)	5.0	3	31.0 + TT	17.5 - TT (16.0 - TT²)
23	29	0	6.5	0 (1.5²)	22.5 (21.0²)	5.0	3	31.0 + TT	17.5 - TT (16.0 - TT²)
24	29	0	4.5	0 (1.5²)	24.5 (23.0²)	3.0	3	31.0 + TT	21.5 - TT (20.0 - TT²)
25	29	0	2.5	0 (1.5²)	26.5 (25.0²)	3.0	3	31.0 + TT	23.5 - TT (22.0 - TT²)
26	29	0	6.5	0 (1.5²)	22.5 (21.0²)	5.0	3	31.0 + TT	17.5 - TT (16.0 - TT²)
27	29	0	6.5	0 (1.5²)	22.5 (21.0²)	5.0	3	31.0 + TT	17.5 - TT (16.0 - TT²)

Test ID	$P_{PowerClass}$ (dBm)	$\Delta P_{PowerClass}$ (dB)	MPR (dB)	$\Delta T_{C,c}$ (dB)	$P_{CMAX\_L,f,c}$ (dBm)	$T(P_{CMAX\_L,f,c})$ (dB)	$T_{L,c}$ (dB)	Upper limit (dBm)	Lower limit (dBm)
28	29	0	4.5	0 (1.5²)	24.5 (23.0²)	3.0	3	31.0 + TT	21.5 - TT (20.0 - TT²)
29	29	0	4.5	0 (1.5²)	24.5 (23.0²)	3.0	3	31.0 + TT	21.5 - TT (20.0 - TT²)
30	29	0	6.5	0 (1.5²)	22.5 (21.0²)	5.0	3	31.0 + TT	17.5 - TT (16.0 - TT²)
31	29	0	6.5	0 (1.5²)	22.5 (21.0²)	5.0	3	31.0 + TT	17.5 - TT (16.0 - TT²)
32	29	0	5	0 (1.5²)	24.0 (22.5²)	3.0 (5.0²)	3	31.0 + TT	21.0 - TT (17.5 - TT²)
33	29	0	8.5	0 (1.5²)	20.5 (19.0²)	6.0 (5.0²)	3	31.0 + TT	14.5 - TT (14.0 - TT²)
34	29	0	8.5	0 (1.5²)	20.5 (19.0²)	6.0 (5.0²)	3	31.0 + TT	14.5 - TT (14.0 - TT²)
35	29	0	8.5	0 (1.5²)	20.5 (19.0²)	6.0 (5.0²)	3	31.0 + TT	14.5 - TT (14.0 - TT²)
36	29	0	8.5	0 (1.5²)	20.5 (19.0²)	6.0 (5.0²)	3	31.0 + TT	14.5 - TT (14.0 - TT²)

NOTE 1: $P_{PowerClass}$ is the maximum UE power specified without taking into account the tolerance.
NOTE 2: For Band n41, transmission bandwidths confined within F_{UL_low} and F_{UL_low} + 4 MHz or F_{UL_high} – 4 MHz and F_{UL_high}.
NOTE 3: TT for each frequency and channel bandwidth is specified in Table 6.2G.2.5-4.

Table 6.2G.2.5-2a: UE Power Class test requirements (for Band n41, n77, n78, n79) for Power Class 1.5 FWA (contiguous allocation)

Test ID	$P_{PowerClass}$ (dBm)	$\Delta P_{PowerClass}$ (dB)	MPR (dB)	$\Delta T_{C,c}$ (dB)	$P_{CMAX\_L,f,c}$ (dBm)	$T(P_{CMAX\_L,f,c})$ (dB)	$T_{L,c}$ (dB)	Upper limit (dBm)	Lower limit (dBm)
1	29	0	0	0 (1.5[3])	29.0 (27.5[3])	3.0	3	31.0 + TT	26.0 - TT (24.5 – TT[3])
2	29	0	6	0 (1.5[3])	23.0 (21.5[3])	3.0 (5.0[3])	3	31.0 + TT	20.0 - TT (16.5 – TT[3])
3	29	0	6	0 (1.5[3])	23.0 (21.5[3])	3.0 (5.0[3])	3	31.0 + TT	20.0 - TT (16.5 – TT[3])
4	29	0	1.5	0 (1.5[3])	27.5 (26.0[3])	3.0	3	31.0 + TT	24.5 - TT (23.0 – TT[3])
5	29	0	0	0 (1.5[3])	29.0 (27.5[3])	3.0	3	31.0 + TT	26.0 - TT (24.5 – TT[3])
6	29	0	6.5	0 (1.5[3])	22.5 (21.0[3])	5.0	3	31.0 + TT	17.5 - TT (16.0 – TT[3])
7	29	0	6.5	0 (1.5[3])	22.5 (21.0[3])	5.0	3	31.0 + TT	17.5 - TT (16.0 – TT[3])
8	29	0	2	0 (1.5[3])	27.0 (25.5[3])	3.0	3	31.0 + TT	24.0 - TT (22.5 – TT[3])
9	29	0	1	0 (1.5[3])	28.0 (26.5[3])	3.0	3	31.0 + TT	25.0 - TT (23.5 – TT[3])
10	29	0	6.5	0 (1.5[3])	22.5 (21.0[3])	5.0	3	31.0 + TT	17.5 - TT (16.0 – TT[3])
11	29	0	6.5	0 (1.5[3])	22.5 (21.0[3])	5.0	3	31.0 + TT	17.5 - TT (16.0 – TT[3])
12	29	0	3.5	0 (1.5[3])	25.5 (24.0[3])	3.0	3	31.0 + TT	22.5 - TT (21.0 – TT[3])
13	29	0	3	0 (1.5[3])	26.0 (24.5[3])	3.0	3	31.0 + TT	23.0 - TT (21.5 – TT[3])
14	29	0	6.5	0 (1.5[3])	22.5 (21.0[3])	5.0	3	31.0 + TT	17.5 - TT (16.0 – TT[3])
15	29	0	6.5	0 (1.5[3])	22.5 (21.0[3])	5.0	3	31.0 + TT	17.5 - TT (16.0 – TT[3])
16	29	0	3.5	0 (1.5[3])	25.5 (24.0[3])	3.0	3	31.0 + TT	22.5 - TT (21.0 – TT[3])
17	29	0	5.5	0 (1.5[3])	23.5 (22.0[3])	3.0	3	31.0 + TT	20.5 - TT (19.0 – TT[3])
18	29	0	6.5	0 (1.5[3])	22.5 (21.0[3])	5.0	3	31.0 + TT	17.5 - TT (16.0 – TT[3])
19	29	0	6.5	0 (1.5[3])	22.5 (21.0[3])	5.0	3	31.0 + TT	17.5 - TT (16.0 – TT[3])
20	29	0	5.5	0 (1.5[3])	23.5 (22.0[3])	3.0 (5.0[3])	3	31.0 + TT	20.5 - TT (17.0 – TT[3])
21	29	0	1.5	0 (1.5[3])	27.5 (26.0[3])	3.0	3	31.0 + TT	24.5 - TT (23.0 – TT[3])
22	29	0	6.5	0 (1.5[3])	22.5 (21.0[3])	5.0	3	31.0 + TT	17.5 - TT (16.0 – TT[3])
23	29	0	6.5	0 (1.5[3])	22.5 (21.0[3])	5.0	3	31.0 + TT	17.5 - TT (16.0 – TT[3])
24	29	0	4	0 (1.5[3])	25.0 (23.5[3])	3.0	3	31.0 + TT	22.0 - TT (20.5 – TT[3])
25	29	0	2	0 (1.5[3])	27.0 (25.5[3])	3.0	3	31.0 + TT	24.0 - TT (22.5 – TT[3])
26	29	0	6.5	0 (1.5[3])	22.5 (21.0[3])	5.0	3	31.0 + TT	17.5 - TT (16.0 – TT[3])
27	29	0	6.5	0 (1.5[3])	22.5 (21.0[3])	5.0	3	31.0 + TT	17.5 - TT (16.0 – TT[3])

Test ID	$P_{PowerClass}$ (dBm)	$\Delta P_{PowerClass}$ (dB)	MPR (dB)	$\Delta T_{C,c}$ (dB)	$P_{CMAX\_L,f,c}$ (dBm)	$T(P_{CMAX\_L,f,c})$ (dB)	$T_{L,c}$ (dB)	Upper limit (dBm)	Lower limit (dBm)
28	29	0	4	0 (1.5[3])	25.0 (23.5[3])	3.0	3	31.0 + TT	22.0 - TT (20.5 – TT[3])
29	29	0	4	0 (1.5[3])	25.0 (23.5[3])	3.0	3	31.0 + TT	22.0 - TT (20.5 – TT[3])
30	29	0	6.5	0 (1.5[3])	22.5 (21.0[3])	5.0	3	31.0 + TT	17.5 - TT (16.0 – TT[3])
31	29	0	6.5	0 (1.5[3])	22.5 (21.0[3])	5.0	3	31.0 + TT	17.5 - TT (16.0 – TT[3])
32	29	0	4.5	0 (1.5[3])	24.5 (23.0[3])	3.0	3	31.0 + TT	21.5 - TT (20.0 – TT[3])
33	29	0	7.5	0 (1.5[3])	21.5 (20.0[3])	5.0 (6.0[3])	3	31.0 + TT	16.5 - TT (14.0 – TT[3])
34	29	0	7.5	0 (1.5[3])	21.5 (20.0[3])	5.0 (6.0[3])	3	31.0 + TT	16.5 - TT (14.0 – TT[3])
35	29	0	7.5	0 (1.5[3])	21.5 (20.0[3])	5.0 (6.0[3])	3	31.0 + TT	16.5 - TT (14.0 – TT[3])
36	29	0	7.5	0 (1.5[3])	21.5 (20.0[3])	5.0 (6.0[3])	3	31.0 + TT	16.5 - TT (14.0 – TT[3])

NOTE 1: This table is targeted to large FWA form factor with 20 dB or above antenna isolation.
NOTE 2: $P_{PowerClass}$ is the maximum UE power specified without taking into account the tolerance.
NOTE 3: For Band n41, transmission bandwidths confined within F_{UL_low} and F_{UL_low} + 4 MHz or F_{UL_high} – 4 MHz and F_{UL_high}.
NOTE 4: TT for each frequency and channel bandwidth is specified in Table 6.2G.2.5-4.

Table 6.2G.2.5-3: UE Power Class test requirements (for Bands n34, n39, n41, n77, n78, n79) for Power Class 2 (almost contiguous allocation)

Test ID	$P_{PowerClass}$ (dBm)	$\Delta P_{PowerClass}$ (dB)	MPR (dB)	MPR increase (dB)	$\Delta T_{C,c}$ (dB)		$P_{CMAX\_L,f,c}$ (dBm)		$T(P_{CMAX\_L,f,c})$ (dB)		$T_{L,c}$ (dB)	Upper limit (dBm)	Lower limit (dBm)	
1[4]	26	0	2	1.5	0	1.5[2]	22.5	21.0[2]	5.0	5.0[2]	3	28.0 + TT	17.5 - TT	16 - TT[2]
1[5]	26	0	2	1	0	1.5[2]	23.0	21.5[2]	3.0	5.0[2]	3	28.0 + TT	20.0 - TT	16.5 - TT[2]
2[6]	26	0	3.5	1.5	0	1.5[2]	21.0	19.5[2]	5.0	5.0[2]	3	28.0 + TT	16.0 - TT	14.5 - TT[2]
2[7]	26	0	3.5	1	0	1.5[2]	21.5	20.0[2]	5.0	6.0[2]	3	28.0 + TT	16.5 - TT	14.0 - TT[2]
3[4]	26	0	2.5	1.5	0	1.5[2]	22.0	20.5[2]	5.0	6.0[2]	3	28.0 + TT	17.0 - TT	14.5 - TT[2]
3[5]	26	0	2.5	1	0	1.5[2]	22.5	21.0[2]	5.0	5.0[2]	3	28.0 + TT	17.5 - TT	16.0 - TT[2]
4[6]	26	0	3.5	1.5	0	1.5[2]	21.0	19.5[2]	5.0	5.0[2]	3	28.0 + TT	16.0 - TT	14.5 - TT[2]
4[7]	26	0	3.5	1	0	1.5[2]	21.5	20.0[2]	5.0	6.0[2]	3	28.0 + TT	16.5 - TT	14.0 - TT[2]
5[6]	26	0	4.5	1.5	0	1.5[2]	20.0	18.5[2]	6.0	5.0[2]	3	28.0 + TT	14.0 - TT	13.5 - TT[2]
5[7]	26	0	4.5	1	0	1.5[2]	20.5	19.0[2]	6.0	5.0[2]	3	28.0 + TT	14.5 - TT	14.0 - TT[2]
6[6]	26	0	8	1.5	0	1.5[2]	16.5	15[2]	5.0	5.0[2]	3	28.0 + TT	11.5 - TT	10.0 - TT[2]
6[7]	26	0	8	1	0	1.5[2]	17.0	15.5[2]	5.0	5.0[2]	3	28.0 + TT	12.0 - TT	10.5 - TT[2]

NOTE 1: $P_{PowerClass}$ is the maximum UE power specified without taking into account the tolerance.
NOTE 2: For Band n41, transmission bandwidths confined within F_{UL_low} and F_{UL_low} + 4 MHz or F_{UL_high} – 4 MHz and F_{UL_high}.
NOTE 3: TT for each frequency and channel bandwidth is specified in Table 6.2G.2.5-4.
NOTE 4: Applicable for CBW/SCS combinations other than CBW=40MHz when SCS=60kHz.
NOTE 5: Only applicable for CBW 40MHz when SCS is 60kHz.
NOTE 6: Applicable for CBW/SCS combinations other than CBW=30MHz when SCS=15kHz and CBW=30MHz, 60MHz, 90MHz when SCS=30kHz and CBW=25MHz, 60MHz, 90MHz when SCS=60kHz.
NOTE 7: Only applicable for CBW=30MHz when SCS=15kHz and CBW=30MHz, 60MHz, 90MHz when SCS=30kHz and CBW=25MHz, 60MHz, 90MHz when SCS=60kHz.
NOTE 8: Test applies only for UEs which support almost contiguous UL CP-OFDM transmissions. For PC2 UE which support almost contiguous UL CP-OFDM transmissions, test is only applicable for Release 16 and forward.

Table 6.2G.2.5-4: Test Tolerance (Maximum Power Reduction (MPR))

	f ≤ 3.0GHz	3.0GHz < f ≤ 4.2GHz	4.2GHz < f ≤ 6.0GHz
BW ≤ 40MHz	0.7 dB	1.0 dB	1.0 dB
40MHz < BW ≤ 100MHz	1.0 dB	1.0 dB	1.0 dB

For the UE which supports inter-band NR CA configuration, inter-band NR-DC configuration, SUL configuration or inter-band EN-DC configuration, $\Delta T_{IB,c}$ as specified in 6.2A.4.0.2 for NR CA, 6.2B.4.0.2 for NR-DC, clause 6.2C.2 for SUL, or TS 38.521-3 [14] clause 6.2B.4.2 for EN-DC applies. Unless otherwise stated, $\Delta T_{IB,c}$ is set to zero. In case the UE supports more than one of band combinations for CA, NR-DC, SUL or EN-DC, and an operating band belongs to more than one band combinations then

a) When the operating band frequency range is ≤ 1 GHz, the applicable additional $\Delta T_{IB,c}$ shall be the average value for all band combinations defined in clause 6.2A.4.0.2, 6.2B.4.0.2, 6.2C.2 in this specification and 6.2B.4.2 in TS 38.521-3 [14], truncated to one decimal place that apply for that operating band among the supported band combinations. In case there is a harmonic relation between low band UL and high band DL, then the maximum $\Delta T_{IB,c}$ among the different supported band combinations involving such band shall be applied.

b) When the operating band frequency range is > 1 GHz, the applicable additional $\Delta T_{IB,c}$ shall be the maximum value for all band combinations defined in clause 6.2A.4.0.2, 6.2B.4.0.2, 6.2C.2 in this specification and 6.2B.4.2 in TS 38.521-3 [14] for the applicable operating bands.

6.2G.3 UE additional maximum output power reduction for Tx Diversity

Editor's note: The following aspects are either missing or not yet determined:

- Tests for network signalling values NS_47 for Power Class 2 with contiguous allocation is complete.

- Tests for network signalling values NS_50, NS_55 for Power Class 2 and NS_47, NS_55 for Power Class 1.5 are FFS.

- The test points for Power Class 1.5 FWA UEs are TBD.

- Tests for Power Class 3 are FFS.

6.2G.3.1 Test purpose

Additional emission requirements can be signalled by the network. Each additional emission requirement is associated with a unique network signalling (NS) value indicated in RRC signalling by an NR frequency band number of the applicable operating band and an associated value in the field *additionalSpectrumEmission.* Throughout this specification, the notion of indication or signalling of an NS value refers to the corresponding indication of an NR frequency band number of the applicable operating band, the IE field *freqBandIndicatorNR* and an associated value of *additionalSpectrumEmission* in the relevant RRC information elements [6].

To meet the additional requirements, additional maximum power reduction (A-MPR) is allowed for the maximum output power as specified in Table 6.2.1.3-1. Unless stated otherwise, the total reduction to UE maximum output power is max(MPR, A-MPR) where MPR is defined in clause 6.2G.2. Outer and inner allocation notation used in clause 6.2G.3 is defined in clause 6.2.2. In absence of modulation and waveform types the A-MPR applies to all modulation and waveform types.

6.2G.3.2 Test applicability

The requirements of this test apply in test case 6.5G.2.2 Additional Spectrum Emission mask for Tx Diversity for network signalling value NS_04 to all types of NR Power Class 1.5, Power Class 2 reporting Tx diversity UE release 15 and forward.

The requirements of this test apply in test case 6.5G.3.3 Additional Spurious Emissions Tx Diversity for network signalling values NS_04, NS_47 and NS_50 to all types of NR Power Class 2 reporting Tx diversity UE release 15 and forward.

6.2G.3.3 Minimum conformance requirements

For UE supporting Tx diversity, the A-MPR values specified in clause 6.2.3 shall apply to the maximum output power specified in Table 6.2.1-1, and the maximum output power is defined as the sum of the maximum output power at each UE antenna connector. Unless stated otherwise, an A-MPR of 0 dB shall be used.

Table 6.2G.3.3-1 specifies the additional requirements with their associated network signalling values and the allowed A-MPR and applicable operating band(s) for each NS value. The mapping of NR frequency band numbers and values of the *additionalSpectrumEmission* to network signalling labels is specified in Table 6.2G.3.3-2.

Table 6.2G.3.3-1: Additional maximum power reduction (A-MPR)

Network signalling label	Requirements (subclause)	NR Band	Channel bandwidth (MHz)	Resources blocks (N_{RB})	A-MPR (dB)
NS_01		Table 5.2-1	5, 10, 15, 20, 25, 30, 40, 50, 60, 70, 80, 90, 100	Table 5.3.2-1	N/A
NS_04	6.5G.2.3.3.2, 6.5G.3.3.3.1	n41	10, 15, 20, 30, 40, 50, 60, 70, 80, 90, 100		Clause 6.2.3.3.2
NS_47	6.5G.3.3.3.15	n41 (Note 3)	30	Table 6.2.3.3.18-1	Table 6.2.3.3.18-2
NS_50	6.5G.3.3.3.16	n39	10, 15, 20, 25, 30, 40		Clause 6.2.3.3.19
NS_55	NOTE 4	n77	10, 15, 20, 25, 30, 40, 50, 60, 70, 80, 90, 100		N/A

NOTE 1: This NS can be signalled for NR bands that have UTRA services deployed.
NOTE 2: No A-MPR is applied for 5 MHz $BW_{channel}$ where the lower channel edge is ≥1930 MHz, 10 MHz $BW_{channel}$ where the lower channel edge is ≥1950 MHz and 15 MHz $BW_{channel}$ where the lower channel edge is ≥1955 MHz.
NOTE 3: Applicable when the NR carrier is within 2545 – 2575 MHz.
NOTE 4: This NS value is applicable for cells in the range 3450 – 3550 MHz for operations in the USA. This NS value does not indicate any additional spurious emission and maximum output power reduction requirements.

Table 6.2G.3.3-2: Mapping of Network Signalling label

NR band	Value of additionalSpectrumEmission							
	0	1	2	3	4	5	6	7
n34	NS_01							
n39	NS_01	NS_50						
n41	NS_01	NS_04	NS_47					
n77	NS_01	NS_55						
n78	NS_01							
n79	NS_01							

NOTE: additionalSpectrumEmission corresponds to an information element of the same name defined in clause 6.3.2 of TS 38.331 [6].

The normative reference for this requirement is TS 38.101-1 [2] clause 6.2.3.1 and 6.2G.3.

6.2G.3.4 Test description

6.2G.3.4.1 Initial conditions

Initial conditions are a set of test configurations the UE needs to be tested in and the steps for the SS to take with the UE to reach the correct measurement state.

The initial test configurations consist of environmental conditions, test frequencies, test channel bandwidths and sub-carrier spacing based on NR operating bands specified in Table 5.3.5-1. All of these configurations shall be tested with applicable test parameters for each combination of test channel bandwidth and sub-carrier spacing, and are shown in Table 6.2.3.4.1-2 for NS_04 and Table 6.2.3.4.1-18 for NS_47. The details of the uplink reference measurement channels (RMCs) are specified in Annex A.2. Configurations of PDSCH and PDCCH before measurement are specified in Annex C.2

1. Connect the SS to the UE antenna connectors as shown in TS 38.508-1 [5] Annex A, Figure A.3.1.1.1 for TE diagram and section A.3.2 for UE diagram.

2. The parameter settings for the cell are set up according to TS 38.508-1 [5] subclause 4.4.3.

3. Downlink signals are initially set up according to Annex C.0, C.1, C.2 and uplink signals according Annex G.0, G.1, G.2 and G.3.0.

4. The UL Reference Measurement channels are set according to the applicable table from Table 6.2G.3.4.1-1 to Table 6.2G.3.4.1-2.

5. Propagation conditions are set according to Annex B.0.

6. Ensure the UE is in state RRC_CONNECTED with generic procedure parameters Connectivity *NR*, Connected without release *On*, Test Mode *On* and Test Loop Function *On* according to TS 38.508-1 [5] clause 4.5. Message contents are defined in clause 6.2G.3.4.3.

6.2G.3.4.2 Test procedure

1. SS sends uplink scheduling information for each UL HARQ process via PDCCH DCI format 0_1 for C_RNTI to schedule the UL RMC according to the applicable table from Table 6.2G.3.4.1-1 to Table 6.2G.3.4.1-3. Since the UE has no payload data to send, the UE transmits uplink MAC padding bits on the UL RMC.

2. Send continuously uplink power control "up" commands in the uplink scheduling information to the UE Allow at least 200ms starting from the first TPC command in this step for the UE to reach P_{UMAX} level.

3. Measure the sum of the mean power of the UE at each antenna connector in the channel bandwidth of the radio access mode. The period of measurement shall be at least the continuous duration one sub-frame (1ms). For TDD, only slots consisting of only UL symbols are under test.

4. For network signalling value “NS_04” and UEs supporting Power Class 2 and Power Class 1.5, repeat steps 1~3 on the applicable bands with message exception of P-Max defined in Table 6.2G.3.4.3.1-2.

5. For network signalling value “NS_04” and UEs supporting Power Class 1.5, repeat steps 1~3 on the applicable bands with message exception of P-Max defined in Table 6.2G.3.4.3.1-3.

NOTE 1: When switching to DFT-s-OFDM waveform, as specified in the test configuration Table 6.2G.3.4.1-1, send an NR RRCReconfiguration message according to TS 38.508-1 [5] clause 4.6.3 Table 4.6.3-118 PUSCH-Config with TRANSFORM_PRECODER_ENABLED condition.

6.2G.3.4.3 Message contents

Message contents are according to TS 38.508-1 [5] subclause 4.6.1, with the following exceptions for each network signalling value.

6.2G.3.4.3.1 Message contents exceptions for network signalling value "NS_04"

1. Information element additionalSpectrumEmission is set to NS_04. This can be set in the *SIB1* as part of the cell broadcast message. This exception indicates that the UE shall meet the additional spurious emission requirement for a specific deployment scenario.

Table 6.2G.3.4.3.1-1: *AdditionalSpectrumEmission* Additional spurious emissions test requirement for "NS_04"

Derivation Path: TS 38.508-1 [5], Table 4.6.3-1			
Information Element	**Value/remark**	**Comment**	**Condition**
additionalSpectrumEmission	1 (NS_04)		

Table 6.2G.3.4.3.1-2: *P-Max* (Step 4)

Derivation Path: TS 38.508-1 [5], Table 4.6.3-89			
Information Element	**Value/remark**	**Comment**	**Condition**
P-Max	23		PC2 UE or PC1.5 UE

Table 6.2G.3.4.3.1-3: *P-Max* (Step 5)

Derivation Path: TS 38.508-1 [5], Table 4.6.3-89			
Information Element	**Value/remark**	**Comment**	**Condition**
P-Max	26		PC1.5 UE

6.2G.3.4.3.2 Message contents exceptions for network signalling value "NS_47"

1. Information element additionalSpectrumEmission is set to NS_47. This can be set in the *SIB1* as part of the cell broadcast message. This exception indicates that the UE shall meet the additional spurious emission requirement for a specific deployment scenario.

Table 6.2G.3.4.3.2-1: *AdditionalSpectrumEmission*: Additional spurious emissions test requirement for "NS_47"

Derivation Path: TS 38.508-1 [5], Table 4.6.3-1			
Information Element	**Value/remark**	**Comment**	**Condition**
additionalSpectrumEmission	2 (NS_47)		

6.2G.3.5 Test requirement

The maximum output power, derived in step 3 shall be within the range prescribed by the nominal maximum output power and tolerance in the applicable table from Table 6.2G.3.5-1. The allowed A-MPR values specified in table 6.2G.3.3-1 are in addition to the allowed MPR requirements specified in clause 6.2G.2. For the UE maximum output power modified by MPR and/or A-MPR, the power limits specified in table 6.2G.1.3-1 apply.

Table 6.2G.3.5-0: Test Tolerance (UE additional maximum output power reduction)

	f ≤ 3.0GHz	**3.0GHz < f ≤ 4.2GHz**	**4.2GHz < f ≤ 6.0GHz**
BW ≤ 40MHz	0.7 dB	1.0 dB	1.0 dB
40MHz < BW ≤ 100MHz	1.0 dB	1.0 dB	1.0 dB

Table 6.2G.3.5-1: UE Power Class 2 test requirements (NS_04) for band n41 (Step 3)

Test ID	$P_{PowerClass}$ (dBm)	MPR (dB)	A-MPR' (dB)	$\Delta T_{C,c}$ (dB)	$P_{CMAX,c}$ (dBm)	$T(P_{CMAX\_L,c})$ (dB)	$T_{L,c}$ (dB)	Upper limit (dBm)	Lower limit (dBm)
7	26	3.5	5.5	1.5	19	3.5	3	28+TT	15.5-TT
8	26	3.5	3.5	0	22.5	2.0	3	28+TT	19.5-TT
9	26	3.5	0	0	22.5	2.0	3	28+TT	19.5-TT
10	26	0.5	3.5	0	22.5	2.0	3	28+TT	19.5-TT
11	26	3.5	0	1.5	21	2.0	3	28+TT	18-TT
12	26	0.5	0	0	25.5	2.0	3	28+TT	22.5-TT
13	26	3.5	6	1.5	18.5	4.0	3	28+TT	14.5-TT
14	26	3.5	4.5	0	21	2.0	3	28+TT	18.5-TT
15	26	3.5	0	0	22.5	2.0	3	28+TT	19.5-TT
16	26	1	4.5	0	21.5	2.0	3	28+TT	18.5-TT
17	26	3.5	0	1.5	21	2.0	3	28+TT	18-TT
18	26	1	0	0	25	2.0	3	28+TT	22-TT
19	26	3.5	6	1.5	18.5	4.0	3	28+TT	14.5-TT
20	26	3.5	5	0	21	2.0	3	28+TT	18-TT
21	26	3.5	0	0	22.5	2.0	3	28+TT	19.5-TT
22	26	2	5	0	21	2.0	3	28+TT	18-TT
23	26	3.5	0	1.5	21	2.0	3	28+TT	18-TT
24	26	2	0	0	24	2.0	3	28+TT	21-TT
25	26	3.5	6.5	1.5	18	4.0	3	28+TT	14-TT
26	26	3.5	5	0	21	2.0	3	28+TT	18-TT
27	26	3.5	0	0	22.5	2.0	3	28+TT	19.5-TT
28	26	2.5	5	0	21	2.0	3	28+TT	18-TT
29	26	3.5	0	1.5	21	2.0	3	28+TT	18-TT
30	26	2.5	0	0	23.5	2.0	3	28+TT	20.5-TT
31	26	4.5	8	1.5	16.5	5.0	3	28+TT	11.5-TT
32	26	4.5	6.5	0	19.5	3.5	3	28+TT	16-TT
33	26	4.5	0	0	21.5	2.0	3	28+TT	18.5-TT
34	26	4.5	6.5	0	19.5	3.5	3	28+TT	16-TT
35	26	4.5	0	1.5	20	2.5	3	28+TT	17-TT
36	26	4.5	0	0	21.5	2.0	3	28+TT	18.5-TT
37	26	3.5	7.5	1.5	17	5.0	3	28+TT	12-TT
38	26	3.5	6.5	0	19.5	3.5	3	28+TT	16-TT
39	26	3.5	0	0	22.5	2.0	3	28+TT	19.5-TT
40	26	3	6.5	0	19.5	3.5	3	28+TT	16-TT
41	26	3.5	0	1.5	21	2.0	3	28+TT	18-TT
42	26	3	0	0	23	2.0	3	28+TT	20-TT
43	26	3.5	7.5	1.5	17	5.0	3	28+TT	12-TT
44	26	3.5	6.5	0	19.5	3.5	3	28+TT	16-TT
45	26	3.5	0	0	22.5	2.0	3	28+TT	19.5-TT
46	26	3	6.5	0	19.5	3.5	3	28+TT	16-TT
47	26	3.5	0	1.5	21	2.0	3	28+TT	18-TT
48	26	3	0	0	23	2.0	3	28+TT	20-TT
49	26	3.5	7.5	1.5	17	5.0	3	28+TT	12-TT
50	26	3.5	6.5	0	19.5	3.5	3	28+TT	16-TT
51	26	3.5	0	0	22.5	2.0	3	28+TT	19.5-TT
52	26	3.5	6.5	0	19.5	3.5	3	28+TT	16-TT
53	26	3.5	0	1.5	21	2.0	3	28+TT	18-TT
54	26	3.5	0	0	22.5	2.0	3	28+TT	19.5-TT
55	26	6.5	10	1.5	14.5	5.0	3	28+TT	11-TT
56	26	6.5	7.5	0	18.5	4.0	3	28+TT	14.5-TT
57	26	6.5	0	0	19.5	3.5	3	28+TT	16-TT
58	26	6.5	7.5	0	18.5	4.0	3	28+TT	14.5-TT
59	26	6.5	0	1.5	18	4.0	3	28+TT	14-TT
60	26	6.5	0	0	19.5	3.5	3	28+TT	16-TT

NOTE 1: $P_{PowerClass}$ is the maximum UE power specified without taking into account the tolerance.
NOTE 2: TT=0.7 dB for $BW_{channel} \leq 40$ MHz; TT=1.0 dB for 40 MHz < $BW_{channel} \leq 100$ MHz.

Table 6.2G.3.5-2: UE Power Class 1.5 test requirements (NS_04) for band n41 (Step 3)

Test ID	$P_{PowerClass}$ (dBm)	MPR (dB)	A-MPR' (dB)	$\Delta T_{C,c}$ (dB)	$P_{CMAX,c}$ (dBm)	$T(P_{CMAX\_L,c})$ (dB)	$T_{L,c}$ (dB)	Upper limit (dBm)	Lower limit (dBm)
7	29	6	7	1.5	20.5	2.5	3	31+TT	17.5-TT
8	29	6	5	0	23	2.0	3	31+TT	20-TT
9	29	6	0	0	23	2.0	3	31+TT	20-TT
10	29	2	5	0	24	2.0	3	31+TT	21-TT
11	29	6	0	1.5	21.5	2.0	3	31+TT	18.5-TT
12	29	2	0	0	27	2.0	3	31+TT	24-TT
13	29	6.5	7.5	1.5	20	2.5	3	31+TT	17-TT
14	29	6.5	6	0	22.5	2.0	3	31+TT	19.5-TT
15	29	6.5	0	0	22.5	2.0	3	31+TT	19.5-TT
16	29	2.5	6	0	23	2.0	3	31+TT	20-TT
17	29	6.5	0	1.5	21	2.0	3	31+TT	18-TT
18	29	2.5	0	0	26.5	2.0	3	31+TT	23.5-TT
19	29	6.5	7.5	1.5	20	2.0	3	31+TT	17-TT
20	29	6.5	6.5	0	22.5	2.0	3	31+TT	19.5-TT
21	29	6.5	0	0	22.5	2.0	3	31+TT	19.5-TT
22	29	3.5	6.5	0	22.5	2.0	3	31+TT	19.5-TT
23	29	6.5	0	1.5	21	2.0	3	31+TT	18-TT
24	29	3.5	0	0	25.5	2.0	3	31+TT	22.5-TT
25	29	6.5	8	1.5	19.5	3.5	3	31+TT	16-TT
26	29	6.5	6.5	0	22.5	2.0	3	31+TT	19.5-TT
27	29	6.5	0	0	22.5	2.0	3	31+TT	19.5-TT
28	29	4	6.5	0	22.5	2.0	3	31+TT	19.5-TT
29	29	6.5	0	1.5	21	2.0	3	31+TT	18-TT
30	29	4	0	0	25	2.0	3	31+TT	22-TT
31	29	6.5	9.5	1.5	18	4.0	3	31+TT	14-TT
32	29	6.5	8	0	21	2.0	3	31+TT	18-TT
33	29	6.5	0	0	22.5	2.0	3	31+TT	19.5-TT
34	29	6.5	8	0	21	2.0	3	31+TT	18-TT
35	29	6.5	0	1.5	21	2.0	3	31+TT	18-TT
36	29	6.5	0	0	22.5	2.0	3	31+TT	19.5-TT
37	29	6.5	9	1.5	18.5	4.0	3	31+TT	14.5-TT
38	29	6.5	8	0	21	2.0	3	31+TT	18-TT
39	29	6.5	0	0	22.5	2.0	3	31+TT	19.5-TT
40	29	4.5	8	0	21	2.0	3	31+TT	18-TT
41	29	6.5	0	1.5	21	2.0	3	31+TT	18-TT
42	29	4.5	0	0	24.5	2.0	3	31+TT	21.5-TT
43	29	6.5	9	1.5	18.5	4.0	3	31+TT	14.5-TT
44	29	6.5	8	0	21	2.0	3	31+TT	18-TT
45	29	6.5	0	0	22.5	2.0	3	31+TT	19.5-TT
46	29	4.5	8	0	21	2.0	3	31+TT	18-TT
47	29	6.5	0	1.5	21	2.0	3	31+TT	18-TT
48	29	4.5	0	0	24.5	2.0	3	31+TT	21.5-TT
49	29	6.5	9	1.5	18.5	4.0	3	31+TT	14.5-TT
50	29	6.5	8	0	21	2.0	3	31+TT	18-TT
51	29	6.5	0	0	22.5	2.0	3	31+TT	19.5-TT
52	29	5	8	0	21	2.0	3	31+TT	18-TT
53	29	6.5	0	1.5	21	2.0	3	31+TT	18-TT
54	29	5	0	0	24	2.0	3	31+TT	21-TT
55	29	8.5	11.5	1.5	16	5.0	3	31+TT	11-TT
56	29	8.5	9	0	20	2.5	3	31+TT	17-TT
57	29	8.5	0	0	20.5	2.5	3	31+TT	17.5-TT
58	29	8.5	9	0	20	2.5	3	31+TT	17-TT
59	29	8.5	0	1.5	19	3.5	3	31+TT	15.5-TT
60	29	8.5	0	0	20.5	2.5	3	31+TT	17.5-TT

NOTE 1: $P_{PowerClass}$ is the maximum UE power specified without taking into account the tolerance.
NOTE 2: TT=0.7 dB for $BW_{channel} \leq 40$ MHz; TT=1.0 dB for 40 MHz < $BW_{channel} \leq 100$ MHz.

Table 6.2G.3.5-3: UE Power Class 1.5 and Power Class 2 test requirements (NS_04) for band n41 (Step 4)

Test ID	$P_{PowerClass}$ (dBm)	$\Delta P_{PowerClass}$ (dB)	MPR (dB)	A-MPR' (dB)	$\Delta T_{C,c}$ (dB)	$P_{CMAX,c}$ (dBm)	$T(P_{CMAX\_L,c})$ (dB)	$T_{L,c}$ (dB)	Upper limit (dBm)	Lower limit (dBm)
7	29[3] (26[4])	6[3] (3[4])	0.5	3.5	1.5	18	4.0	3	25+TT	14-TT
8	29[3] (26[4])	6[3] (3[4])	0.5	3.5	0	19.5	3.5	3	25+TT	16-TT
9	29[3] (26[4])	6[3] (3[4])	0.5	0	0	22.5	2.0	3	25+TT	19.5-TT
10	29[3] (26[4])	6[3] (3[4])	0.5	3.5	0	19.5	3.5	3	25+TT	16-TT
11	29[3] (26[4])	6[3] (3[4])	0.5	0	1.5	21	2.0	3	25+TT	18-TT
12	29[3] (26[4])	6[3] (3[4])	0.5	0	0	22.5	2.0	3	25+TT	19.5-TT
13	29[3] (26[4])	6[3] (3[4])	1	4	1.5	17.5	5.0	3	25+TT	12.5-TT
14	29[3] (26[4])	6[3] (3[4])	1	4	0	19	3.5	3	25+TT	15.5-TT
15	29[3] (26[4])	6[3] (3[4])	1	0	0	22	2.0	3	25+TT	19-TT
16	29[3] (26[4])	6[3] (3[4])	1	4	0	19	3.5	3	25+TT	15.5-TT
17	29[3] (26[4])	6[3] (3[4])	1	0	1.5	20.5	2.5	3	25+TT	17.5-TT
18	29[3] (26[4])	6[3] (3[4])	1	0	0	22	2.0	3	25+TT	19-TT
19	29[3] (26[4])	6[3] (3[4])	2	4	1.5	17.5	5.0	3	25+TT	12.5-TT
20	29[3] (26[4])	6[3] (3[4])	2	4	0	19	3.5	3	25+TT	15.5-TT
21	29[3] (26[4])	6[3] (3[4])	2	0	0	21	2.0	3	25+TT	18-TT
22	29[3] (26[4])	6[3] (3[4])	2	4	0	19	3.5	3	25+TT	15.5-TT
23	29[3] (26[4])	6[3] (3[4])	2	0	1.5	19.5	3.5	3	25+TT	16-TT
24	29[3] (26[4])	6[3] (3[4])	2	0	0	21	2.0	3	25+TT	18-TT
25	29[3] (26[4])	6[3] (3[4])	2.5	4.5	1.5	17	5.0	3	25+TT	12-TT
26	29[3] (26[4])	6[3] (3[4])	2.5	4	0	19	3.5	3	25+TT	15.5-TT
27	29[3] (26[4])	6[3] (3[4])	2.5	0	0	20.5	2.5	3	25+TT	17.5-TT
28	29[3] (26[4])	6[3] (3[4])	2.5	4	0	19	3.5	3	25+TT	15.5-TT
29	29[3] (26[4])	6[3] (3[4])	2.5	0	1.5	19	3.5	3	25+TT	15.5-TT
30	29[3] (26[4])	6[3] (3[4])	2.5	0	0	20.5	2.5	3	25+TT	17.5-TT
31	29[3] (26[4])	6[3] (3[4])	4.5	6	1.5	15.5	5.0	3	25+TT	10.5-TT
32	29[3] (26[4])	6[3] (3[4])	4.5	4.5	0	18.5	4.0	3	25+TT	14.5-TT
33	29[3] (26[4])	6[3] (3[4])	4.5	0	0	18.5	4.0	3	25+TT	14.5-TT
34	29[3] (26[4])	6[3] (3[4])	4.5	4.5	0	18.5	4.0	3	25+TT	14.5-TT
35	29[3] (26[4])	6[3] (3[4])	4.5	0	1.5	17	5.0	3	25+TT	12-TT
36	29[3] (26[4])	6[3] (3[4])	4.5	0	0	18.5	4.0	3	25+TT	14.5-TT
37	29[3] (26[4])	6[3] (3[4])	3	5.5	1.5	16	5.0	3	25+TT	11-TT

38	29^3 (26^4)	6^3	(3^4)	3	5.5	0	17.5	5.0	3	25+TT	12.5-TT
39	29^3 (26^4)	6^3	(3^4)	3	0	0	20	2.5	3	25+TT	17-TT
40	29^3 (26^4)	6^3	(3^4)	3	5.5	0	17.5	5.0	3	25+TT	12.5-TT
41	29^3 (26^4)	6^3	(3^4)	3	0	1.5	18.5	4.0	3	25+TT	14.5-TT
42	29^3 (26^4)	6^3	(3^4)	3	0	0	20	2.5	3	25+TT	17-TT
43	29^3 (26^4)	6^3	(3^4)	3	5.5	1.5	16	5.0	3	25+TT	11-TT
44	29^3 (26^4)	6^3	(3^4)	3	5.5	0	17.5	5.0	3	25+TT	12.5-TT
45	29^3 (26^4)	6^3	(3^4)	3	0	0	20	2.5	3	25+TT	17-TT
46	29^3 (26^4)	6^3	(3^4)	3	5.5	0	17.5	5.0	3	25+TT	12.5-TT
47	29^3 (26^4)	6^3	(3^4)	3	0	1.5	18.5	4.0	3	25+TT	14.5-TT
48	29^3 (26^4)	6^3	(3^4)	3	0	0	20	2.5	3	25+TT	17-TT
49	29^3 (26^4)	6^3	(3^4)	3.5	5.5	1.5	16	5.0	3	25+TT	11-TT
50	29^3 (26^4)	6^3	(3^4)	3.5	5.5	0	17.5	5.0	3	25+TT	12.5-TT
51	29^3 (26^4)	6^3	(3^4)	3.5	0	0	19.5	3.5	3	25+TT	16-TT
52	29^3 (26^4)	6^3	(3^4)	3.5	5.5	0	17.5	5.0	3	25+TT	12.5-TT
53	29^3 (26^4)	6^3	(3^4)	3.5	0	1.5	18	4.0	3	25+TT	14-TT
54	29^3 (26^4)	6^3	(3^4)	3.5	0	0	19.5	3.5	3	25+TT	16-TT
55	29^3 (26^4)	6^3	(3^4)	6.5	8	1.5	13.5	5.0	3	25+TT	8.5-TT
56	29^3 (26^4)	6^3	(3^4)	6.5	6.5	0	16.5	5.0	3	25+TT	11.5-TT
57	29^3 (26^4)	6^3	(3^4)	6.5	0	0	16.5	5.0	3	25+TT	11.5-TT
58	29^3 (26^4)	6^3	(3^4)	6.5	6.5	0	16.5	5.0	3	25+TT	11.5-TT
59	29^3 (26^4)	6^3	(3^4)	6.5	0	1.5	15	5.0	3	25+TT	10-TT
60	29^3 (26^4)	6^3	(3^4)	6.5	0	0	16.5	5.0	3	25+TT	11.5-TT

NOTE 1: $P_{PowerClass}$ is the maximum UE power specified without taking into account the tolerance.
NOTE 2: TT=0.7 dB for $BW_{channel} \leq 40$ MHz; TT=1.0 dB for 40 MHz < $BW_{channel} \leq 100$ MHz.
NOTE 3: Power Class 1.5 UE
NOTE 4: Power Class 2 UE

Table 6.2G.3.5-4: UE Power Class 1.5 test requirements (NS_04) for band n41 (Step 5)

Test ID	$P_{PowerClass}$ (dBm)	$\Delta P_{PowerClass}$ (dB)	MPR (dB)	A-MPR' (dB)	$\Delta T_{C,c}$ (dB)	$P_{CMAX,c}$ (dBm)	$T(P_{CMAX\_L,c})$ (dB)	$T_{L,c}$ (dB)	Upper limit (dBm)	Lower limit (dBm)
7	29	3	3.5	5.5	1.5	19	3.5	3	28+TT	15.5-TT
8	29	3	3.5	3.5	0	22.5	2.0	3	28+TT	19.5-TT
9	29	3	3.5	0	0	22.5	2.0	3	28+TT	19.5-TT
10	29	3	0.5	3.5	0	22.5	2.0	3	28+TT	19.5-TT
11	29	3	3.5	0	1.5	21	2.0	3	28+TT	18-TT
12	29	3	0.5	0	0	25.5	2.0	3	28+TT	22.5-TT
13	29	3	3.5	6	1.5	18.5	4.0	3	28+TT	14.5-TT
14	29	3	3.5	4.5	0	21	2.0	3	28+TT	18.5-TT
15	29	3	3.5	0	0	22.5	2.0	3	28+TT	19.5-TT
16	29	3	1	4.5	0	21.5	2.0	3	28+TT	18.5-TT
17	29	3	3.5	0	1.5	21	2.0	3	28+TT	18-TT
18	29	3	1	0	0	25	2.0	3	28+TT	22-TT
19	29	3	3.5	6	1.5	18.5	4.0	3	28+TT	14.5-TT
20	29	3	3.5	5	0	19.5	2.0	3	28+TT	18-TT
21	29	3	3.5	0	0	21	2.0	3	28+TT	19.5-TT
22	29	3	2	5	0	21	2.0	3	28+TT	18-TT
23	29	3	3.5	0	1.5	21	2.0	3	28+TT	18-TT
24	29	3	2	0	0	24	2.0	3	28+TT	21-TT
25	29	3	3.5	6.5	1.5	18	4.0	3	28+TT	14-TT
26	29	3	3.5	5	0	21	2.0	3	28+TT	18-TT
27	29	3	3.5	0	0	22.5	2.0	3	28+TT	19.5-TT
28	29	3	2.5	5	0	21	2.0	3	28+TT	18-TT
29	29	3	3.5	0	1.5	21	2.0	3	28+TT	18-TT
30	29	3	2.5	0	0	23.5	2.0	3	28+TT	20.5-TT
31	29	3	4.5	8	1.5	16.5	5.0	3	28+TT	11.5-TT
32	29	3	4.5	6.5	0	19.5	3.5	3	28+TT	16-TT
33	29	3	4.5	6.5	0	19.5	3.5	3	28+TT	16-TT
34	29	3	4.5	0	0	21.5	2.0	3	28+TT	18.5-TT
35	29	3	4.5	0	1.5	20	2.5	3	28+TT	17-TT
36	29	3	4.5	0	0	21.5	2.0	3	28+TT	18.5-TT
37	29	3	3.5	7.5	1.5	17	5.0	3	28+TT	12-TT
38	29	3	3.5	6.5	0	19.5	3.5	3	28+TT	16-TT
39	29	3	3.5	0	0	22.5	2.0	3	28+TT	19.5-TT
40	29	3	3	6.5	0	19.5	3.5	3	28+TT	16-TT
41	29	3	3.5	0	1.5	21	2.0	3	28+TT	18-TT
42	29	3	3	0	0	23	2.0	3	28+TT	20-TT
43	29	3	3.5	7.5	1.5	17	5.0	3	28+TT	12-TT
44	29	3	3.5	6.5	0	19.5	3.5	3	28+TT	16-TT
45	29	3	3.5	0	0	22.5	2.0	3	28+TT	19.5-TT
46	29	3	3	6.5	0	19.5	3.5	3	28+TT	16-TT
47	29	3	3.5	0	1.5	21	2.0	3	28+TT	18-TT
48	29	3	3	0	0	23	2.0	3	28+TT	20-TT
49	29	3	3.5	7.5	1.5	17	5.0	3	28+TT	12-TT
50	29	3	3.5	6.5	0	19.5	3.5	3	28+TT	16-TT
51	29	3	3.5	0	0	22.5	2.0	3	28+TT	19.5-TT
52	29	3	3.5	6.5	0	19.5	3.5	3	28+TT	16-TT
53	29	3	3.5	0	1.5	21	2.0	3	28+TT	18-TT
54	29	3	3.5	0	0	22.5	2.0	3	28+TT	19.5-TT
55	29	3	6.5	10	1.5	14.5	5.0	3	28+TT	9.5-TT
56	29	3	6.5	7.5	0	18.5	4.0	3	28+TT	14.5-TT
57	29	3	6.5	0	0	19.5	3.5	3	28+TT	16-TT
58	29	3	6.5	7.5	0	18.5	4.0	3	28+TT	14.5-TT
59	29	3	6.5	0	1.5	18	4.0	3	28+TT	14-TT
60	29	3	6.5	0	0	19.5	3.5	3	28+TT	16-TT

NOTE 1: $P_{PowerClass}$ is the maximum UE power specified without taking into account the tolerance.
NOTE 2: TT=0.7 dB for $BW_{channel} \leq 40$ MHz; TT=1.0 dB for 40 MHz < $BW_{channel} \leq 100$ MHz.

Table 6.2G.3.5-5: UE Power Class 2 test requirements for NS_47 (contiguous allocation)

Test ID	$P_{PowerClass}$ (dBm)	$\Delta P_{PowerClass}$ (dB)	MPR (dB)	A-MPR (dB)	$\Delta T_{C,c}$ (dB)	$P_{CMAX\_L,c}$ (dBm)	$T(P_{CMAX\_L,C})$ (dB)	$T_{L,c}$ (dB)	Upper limit (dBm)	Lower limit (dBm)
1	26	0	3.5	10	0	16	5	3	28+TT	11-TT
2	26	0	0.0	8.5	0	17.5	5	3	28+TT	12.5-TT
3	26	0	3.5	5	0	21	2	3	28+TT	18-TT
4	26	0	0.5	8.5	0	17.5	5	3	28+TT	12.5-TT
5	26	0	0.5	6	0	20	2.5	3	28+TT	17-TT
6	26	0	0.5	6	0	20	2.5	3	28+TT	17-TT
7	26	0	0.5	8.5	0	17.5	5	3	28+TT	12.5-TT
8	26	0	3.5	10	0	16	5	3	28+TT	11-TT
9	26	0	0.0	8.5	0	17.5	5	3	28+TT	12.5-TT
10	26	0	3.5	5	0	21	2	3	28+TT	18-TT
11	26	0	1.0	8.5	0	17.5	5	3	28+TT	12.5-TT
12	26	0	1.0	6	0	20	2.5	3	28+TT	17-TT
13	26	0	1.0	6	0	20	2.5	3	28+TT	17-TT
14	26	0	1.0	8.5	0	17.5	5	3	28+TT	12.5-TT
15	26	0	3.5	10	0	16	5	3	28+TT	11-TT
16	26	0	1.0	8.5	0	17.5	5	3	28+TT	12.5-TT
17	26	0	3.5	5	0	21	2	3	28+TT	18-TT
18	26	0	2.0	8.5	0	17.5	5	3	28+TT	12.5-TT
19	26	0	2.0	6	0	20	2.5	3	28+TT	17-TT
20	26	0	2.0	6	0	20	2.5	3	28+TT	17-TT
21	26	0	2.0	8.5	0	17.5	5	3	28+TT	12.5-TT
22	26	0	3.5	10	0	16	5	3	28+TT	11-TT
23	26	0	2.5	8.5	0	17.5	5	3	28+TT	12.5-TT
24	26	0	3.5	5	0	21	2	3	28+TT	18-TT
25	26	0	2.5	8.5	0	17.5	5	3	28+TT	12.5-TT
26	26	0	2.5	6	0	20	2.5	3	28+TT	17-TT
27	26	0	2.5	6	0	20	2.5	3	28+TT	17-TT
28	26	0	2.5	8.5	0	17.5	5	3	28+TT	12.5-TT
29	26	0	4.5	10	0	16	5	3	28+TT	11-TT
30	26	0	4.5	8.5	0	17.5	5	3	28+TT	12.5-TT
31	26	0	4.5	5	0	21	2	3	28+TT	18-TT
32	26	0	4.5	8.5	0	17.5	5	3	28+TT	12.5-TT
33	26	0	4.5	6	0	20	2.5	3	28+TT	17-TT
34	26	0	4.5	6	0	20	2.5	3	28+TT	17-TT
35	26	0	4.5	8.5	0	17.5	5	3	28+TT	12.5-TT
36	26	0	3.5	10	0	16	5	3	28+TT	11-TT
37	26	0	1.5	10	0	16	5	3	28+TT	11-TT
38	26	0	3.5	5	0	21	2	3	28+TT	18-TT
39	26	0	3	10	0	16	5	3	28+TT	11-TT
40	26	0	3	7	0	19	3.5	3	28+TT	15.5-TT
41	26	0	3	7	0	19	3.5	3	28+TT	15.5-TT
42	26	0	3	10	0	16	5	3	28+TT	11-TT
43	26	0	3.5	10	0	16	5	3	28+TT	11-TT
44	26	0	2.0	10	0	16	5	3	28+TT	11-TT
45	26	0	3.5	5	0	21	2	3	28+TT	18-TT
46	26	0	3	10	0	16	5	3	28+TT	11-TT
47	26	0	3	7	0	19	3.5	3	28+TT	15.5-TT
48	26	0	3	7	0	19	3.5	3	28+TT	15.5-TT
49	26	0	3	10	0	16	5	3	28+TT	11-TT
50	26	0	3.5	10	0	16	5	3	28+TT	11-TT
51	26	0	3.5	10	0	16	5	3	28+TT	11-TT
52	26	0	3.5	5	0	21	2	3	28+TT	18-TT
53	26	0	3.5	10	0	16	5	3	28+TT	11-TT
54	26	0	3.5	7	0	19	3.5	3	28+TT	15.5-TT
55	26	0	3.5	7	0	19	3.5	3	28+TT	15.5-TT
56	26	0	3.5	10	0	16	5	3	28+TT	11-TT
57	26	0	6.5	10	0	16	5	3	28+TT	11-TT
58	26	0	6.5	10	0	16	5	3	28+TT	11-TT
59	26	0	6.5	0	0	19.5	3.5	3	28+TT	16-TT

Test ID	$P_{PowerClass}$ (dBm)	$\Delta P_{PowerClass}$ (dB)	MPR (dB)	A-MPR (dB)	$\Delta T_{C,c}$ (dB)	$P_{CMAX\_L,c}$ (dBm)	$T(P_{CMAX\_L,c})$ (dB)	$T_{L,c}$ (dB)	Upper limit (dBm)	Lower limit (dBm)
60	26	0	6.5	10	0	16	5	3	28+TT	11-TT
61	26	0	6.5	7	0	19	3.5	3	28+TT	15.5-TT
62	26	0	6.5	7	0	19	3.5	3	28+TT	15.5-TT
63	26	0	6.5	10	0	16	5	3	28+TT	11-TT
NOTE 1: $P_{PowerClass}$ is the maximum UE power specified without taking into account the tolerance. NOTE 2: TT for each frequency and channel bandwidth is specified in Table 6.2G.3.5-0.										

For the UE which supports inter-band NR CA configuration, inter-band NR-DC configuration, SUL configuration or inter-band EN-DC configuration, $\Delta T_{IB,c}$ as specified in 6.2A.4.0.2 for NR CA, 6.2B.4.0.2 for NR-DC, clause 6.2C.2 for SUL, or TS 38.521-3 [14] clause 6.2B.4.2 for EN-DC applies. Unless otherwise stated, $\Delta T_{IB,c}$ is set to zero. In case the UE supports more than one of band combinations for CA, NR-DC, SUL or EN-DC, and an operating band belongs to more than one band combinations then

a) When the operating band frequency range is ≤ 1 GHz, the applicable additional $\Delta T_{IB,c}$ shall be the average value for all band combinations defined in clause 6.2A.4.0.2, 6.2B.4.0.2, 6.2C.2 in this specification and 6.2B.4.2 in TS 38.521-3 [14], truncated to one decimal place that apply for that operating band among the supported band combinations. In case there is a harmonic relation between low band UL and high band DL, then the maximum $\Delta T_{IB,c}$ among the different supported band combinations involving such band shall be applied.

b) When the operating band frequency range is > 1 GHz, the applicable additional $\Delta T_{IB,c}$ shall be the maximum value for all band combinations defined in clause 6.2A.4.0.2, 6.2B.4.0.2, 6.2C.2 in this specification and 6.2B.4.2 in TS 38.521-3 [14] for the applicable operating bands.

6.2I Transmitter power for RedCap

6.2I.1 UE maximum output power for RedCap

Editor's Note: The test case is not completed due to the following aspects are not yet determined:

- Generic procedure for RedCap UE in 38.508-1 is FFS

- Default message configuration for RedCap UE in 38.508-1 is FFS.

6.2I.1.1 Test purpose

To verify that the error of the UE maximum output power does not exceed the range prescribed by the specified nominal maximum output power and tolerance.

An excess maximum output power has the possibility to interfere to other channels or other systems. A small maximum output power decreases the coverage area.

6.2I.1.2 Test applicability

This test case applies to all types of NR RedCap UE release 17 and forward.

6.2I.1.3 Minimum conformance requirements

For Redcap UE, the requirements for power class 3 specified in clause 6.2.1 apply.

The normative reference for this requirement is TS 38.101-1 [2] clause 6.2.1I.

6.2I.1.4 Test description

6.2I.1.4.1 Initial conditions

Same initial conditions as in 6.2.1 with following exception:

- The test channel bandwidth are specified in TS 38.508-1 [5] subclause 4.3.1 for RedCap.

6.2I.1.4.2 Test procedure

Same test procedure as steps 1~3 of clause 6.2.1.4.2.

6.2I.1.4.3 Message contents

FFS.

6.2I.1.5 Test requirement

The maximum output power, derived in step 3 shall be within the range prescribed by the nominal maximum output power and tolerance in Table 6.2I.1.5-1 for Power Class 3.

Table 6.2I.1.5-1: Maximum Output Power test requirement for Power Class 3

NR band	Class 1 (dBm)	Tolerance (dB)	Class 2 (dBm)	Tolerance (dB)	Class 3 (dBm)	Tolerance (dB)
n1					23	±2±TT
n2					23	$\pm 2^3 \pm$TT
n3					23	$\pm 2^3 \pm$TT
n5					23	±2±TT
n7					23	$\pm 2^3 \pm$TT
n8					23	$\pm 2^3 \pm$TT
n12					23	$\pm 2^3 \pm$TT
n14					23	±2±TT
n20					23	$\pm 2^3 \pm$TT
n24					23	+2+TT/-3.0^3-TT
n25					23	$\pm 2^3 \pm$TT
n26					23	$\pm 2^3 \pm$TT
n28					23	+2+TT/-2.5-TT
n30					23	±2±TT
n34					23	±2±TT
n38					23	±2±TT
n39					23	±2±TT
n40					23	±2±TT
n41					23	± 2^3±TT
n48					23	+2+TT/-3-TT
n50					23	±2±TT
n51					23	±2±TT
n53					23	±2±TT
n65					23	±2±TT
n66					23	±2±TT
n70					23	±2±TT
n71					23	+2+TT/-2.5-TT
n74					23	±2±TT
n77					23	+2+TT/-3-TT
n78					23	+2+TT/-3-TT
n79					23	+2+TT/-3-TT

NOTE 1: $P_{PowerClass}$ is the maximum UE power specified without taking into account the tolerance
NOTE 2: Power class 3 is default power class unless otherwise stated
NOTE 3: Refers to the transmission bandwidths confined within F_{UL_low} and FUL_low + 4 MHz or F_{UL_high} – 4 MHz and F_{UL_high}, the maximum output power requirement is relaxed by reducing the lower tolerance limit by 1.5 dB
NOTE 4: TT for each frequency and channel bandwidth is specified in Table 6.2I.1.5-3

Table 6.2I.1.5-2: Test Tolerance (UE maximum output power)

	f ≤ 3.0GHz	3.0GHz < f ≤ 4.2GHz	4.2GHz < f ≤ 6.0GHz
BW ≤ 40MHz	0.7 dB	1.0 dB	1.0 dB

For the UE which supports [SUL] configuration, $\Delta T_{IB,c}$ as specified in clause [6.2C.2 for SUL] applies. Unless otherwise stated, $\Delta T_{IB,c}$ is set to zero. In case the UE supports more than one of band combinations, and an operating band belongs to more than one band combinations then

a) When the operating band frequency range is ≤ 1 GHz, the applicable additional $\Delta T_{IB,c}$ shall be the average value for all band combinations defined in [clause 6.2C.2] in this specification, truncated to one decimal place that apply for that operating band among the supported band combinations. In case there is a harmonic relation between low band UL and high band DL, then the maximum $\Delta T_{IB,c}$ among the different supported band combinations involving such band shall be applied

b) When the operating band frequency range is > 1 GHz, the applicable additional $\Delta T_{IB,c}$ shall be the maximum value for all band combinations defined in [clause 6.2C.2] in this specification for the applicable operating bands.

6.2I.2 UE maximum output power reduction for RedCap

Editor's Note: The test case is not completed due to the following aspects are not yet determined:

- Generic procedure for RedCap UE in 38.508-1 is FFS

- Default message configuration for RedCap UE in 38.508-1 is FFS.

6.2I.2.1 Test purpose

The number of RB identified in Table 6.2I.2.3-1 is based on meeting the requirements for adjacent channel leakage ratio and the maximum power reduction (MPR) due to Cubic Metric (CM).

6.2I.2.2 Test applicability

This test case applies to all types of NR RedCap UE release 17 and forward.

NOTE: Test execution is not necessary if TS 38.521-1 6.5I.2.4.1 is executed.

6.2I.2.3 Minimum conformance requirements

No exceptional requirements are specified for RedCap UE.

The normative reference for this requirement is TS 38.101-1 [2] clause 6.2.2.

6.2I.2.4 Test description

6.2I.2.4.1 Initial conditions

Same initial conditions as in 6.2.2 with following exception:

- Only test configuration tables for PC3 are tested: Table 6.2.2.4.1-1, Table 6.2.2.4.1-3.

- The test channel bandwidth are specified in TS 38.508-1 [5] subclause 4.3.1 for RedCap.

6.2I.2.4.2 Test procedure

Same test procedure as steps 1~3 of clause 6.2.2.4.2.

6.2I.2.4.3 Message contents

FFS.

6.2I.2.5 Test requirement

The maximum output power, derived in step 3 shall be within the range prescribed by the nominal maximum output power and tolerance in Table 6.2I.2.5-1 to Table 6.2I.2.5-7.

6.2I.3 UE additional maximum output power reduction for RedCap

Editor's Note: The test case is not completed due to the following aspects are not yet determined:

- Generic procedure for RedCap UE in 38.508-1 is FFS

- Default message configuration for RedCap UE in 38.508-1 is FFS.

6.2I.3.1 Test purpose

The same test purpose as in 6.2.3.1.

6.2I.3.2 Test applicability

This test case applies to all types of NR RedCap UE release 17 and forward.

NOTE: Test execution is not necessary if TS 38.521-1 6.5I.2.3, 6.5I.2.4.2 and 6.5I.3.3 are executed.

6.2I.3.3 Minimum conformance requirements

No exceptional requirements are specified for RedCap UE.

The normative reference for this requirement is TS 38.101-1 [2] clause 6.2.3.

6.2I.3.4 Test description

6.2I.3.4.1 Initial conditions

Same initial conditions as in 6.2.3 with following exception:

- Only test configuration tables for PC3 with test channel bandwidth <=20MHz are tested.
- The test channel bandwidth are specified in TS 38.508-1 [5] subclause 4.3.1 for RedCap.

6.2I.3.4.2 Test procedure

Same test procedure as steps 1~3 of clause 6.2.3.4.2.

6.2I.3.4.3 Message contents

FFS

6.2I.3.5 Test requirement

The maximum output power, derived in step 3 shall be within the range prescribed by the nominal maximum output power and tolerance in the applicable tables from Table 6.2I.3.5-1 to Table 6.2I.3.5-38.

Table 6.2I.3.5-0: Test Tolerance (UE additional maximum output power reduction)

	f ≤ 3.0GHz	**3.0GHz < f ≤ 4.2GHz**	**4.2GHz < f ≤ 6.0GHz**
BW ≤ 40MHz	0.7 dB	1.0 dB	1.0 dB

Table 6.2I.3.5-1: UE Power Class 3 test requirements (NS_35) for band n71

Test ID	$P_{PowerClass}$ (dBm)	MPR (dB)	A-MPR (dB)	$\Delta T_{C,c}$ (dB)	$P_{CMAX,c}$ (dBm)	$T(P_{CMAX\_L,c})$ (dB)	$T_{L,c}$ (dB)	Upper limit (dBm)	Lower limit (dBm)
1	23	0.5	0	0	22.5	2	2.5	25+TT	20-TT
2	23	0.5	0	0	22.5	2	2.5	25+TT	20-TT
3	23	0.5	0	0	22.5	2	2.5	25+TT	20-TT
4	23	1	0	0	22	2	2.5	25+TT	19.5-TT
5	23	1	0	0	22	2	2.5	25+TT	19.5-TT
6	23	1	0	0	22	2	2.5	25+TT	19.5-TT
7	23	2	0	0	21	2	2.5	25+TT	18.5-TT
8	23	2	0	0	21	2	2.5	25+TT	18.5-TT
9	23	2	0	0	21	2	2.5	25+TT	18.5-TT
10	23	2.5	0	0	20.5	2.5	2.5	25+TT	18-TT
11	23	2.5	0	0	20.5	2.5	2.5	25+TT	18-TT
12	23	2.5	0	0	20.5	2.5	2.5	25+TT	18-TT
13	23	4.5	0	0	18.5	4	2.5	25+TT	14.5-TT
14	23	4.5	0	0	18.5	4	2.5	25+TT	14.5-TT
15	23	4.5	0	0	18.5	4	2.5	25+TT	14.5-TT
16	23	3	0	0	20	2.5	2.5	25+TT	17.5-TT
17	23	3	0	0	20	2.5	2.5	25+TT	17.5-TT
18	23	3	0	0	20	2.5	2.5	25+TT	17.5-TT
19	23	3	0	0	20	2.5	2.5	25+TT	17.5-TT
20	23	3	0	0	20	2.5	2.5	25+TT	17.5-TT
21	23	3	0	0	20	2.5	2.5	25+TT	17.5-TT
22	23	3.5	0	0	19.5	3.5	2.5	25+TT	16-TT
23	23	3.5	0	0	19.5	3.5	2.5	25+TT	16-TT
24	23	3.5	0	0	19.5	3.5	2.5	25+TT	16-TT
25	23	6.5	0	0	16.5	5	2.5	25+TT	11.5-TT
26	23	6.5	0	0	16.5	5	2.5	25+TT	11.5-TT
27	23	6.5	0	0	16.5	5	2.5	25+TT	11.5-TT

NOTE 1: $P_{PowerClass}$ is the maximum UE power specified without taking into account the tolerance.
NOTE 2: TT for each frequency and channel bandwidth is specified in Table 6.2I.3.5-0.

Table 6.2I.3.5-2: UE Power Class 3 test requirements (NS_04) for band n41

Test ID	$P_{PowerClass}$ (dBm)	$\Delta P_{PowerClass}$ (dB)	MPR (dB)	A-MPR (dB)	$\Delta T_{C,c}$ (dB)	$P_{CMAX,c}$ (dBm)	$T(P_{CMAX\_L,c})$ (dB)	$T_{L,c}$ (dB)	Upper limit (dBm)	Lower limit (Note 2) (dBm)
1	23	-3	3.5	3.5	1.5	21	2.0	2	28+TT	19-TT
2	23	-3	3.5	3.5	1.5	21	2.0	2	28+TT	19-TT
3	23	-3	3.5	0	1.5	21	2.0	2	28+TT	19-TT
4	23	-3	1.2	0	0	24.8	2.0	2	28+TT	22.8-TT
5	23	-3	3.5	0	1.5	21	2.0	2	28+TT	19-TT
6	23	-3	1.2	0	0	24.8	2.0	2	28+TT	22.8-TT
7	23	0	0.5	3.5	1.5	18	4.0	2	25+TT	14-TT
8	23	0	0.5	3.5	1.5	18	4.0	2	25+TT	14-TT
9	23	0	0.5	0	1.5	21	2.0	2	25+TT	19-TT
10	23	0	0.5	0	0	22.5	2.0	2	25+TT	20.5-TT
11	23	0	0.5	0	1.5	21	2.0	2	25+TT	19-TT
12	23	0	0.5	0	0	22.5	2.0	2	25+TT	20.5-TT
13	23	0	1	4	1.5	17.5	5.0	2	25+TT	12.5-TT
14	23	0	1	4	1.5	17.5	5.0	2	25+TT	12.5-TT
15	23	0	1	0	1.5	20.5	2.5	2	25+TT	18-TT
16	23	0	1	0	0	22	2.0	2	25+TT	20-TT
17	23	0	1	0	1.5	20.5	2.5	2	25+TT	18-TT
18	23	0	1	0	0	22	2.0	2	25+TT	20-TT
19	23	0	2	4	1.5	17.5	5.0	2	25+TT	12.5-TT
20	23	0	2	4	1.5	17.5	5.0	2	25+TT	12.5-TT
21	23	0	2	0	1.5	19.5	3.5	2	25+TT	16-TT
22	23	0	2	0	0	21	2.0	2	25+TT	19-TT
23	23	0	2	0	1.5	19.5	3.5	2	25+TT	16-TT
24	23	0	2	0	0	21	2.0	2	25+TT	19-TT
25	23	0	2.5	4.5	1.5	17	5.0	2	25+TT	12-TT
26	23	0	2.5	4	1.5	17.5	5.0	2	25+TT	12.5-TT
27	23	0	2.5	0	1.5	19	3.5	2	25+TT	15.5-TT
28	23	0	2.5	0	0	20.5	2.5	2	25+TT	18-TT
29	23	0	2.5	0	1.5	19	3.5	2	25+TT	15.5-TT
30	23	0	2.5	0	0	20.5	2.5	2	25+TT	18-TT
31	23	0	4.5	6	1.5	15.5	5.0	2	25+TT	10.5-TT
32	23	0	4.5	4.5	1.5	17	5.0	2	25+TT	12-TT
33	23	0	4.5	0	1.5	17	5.0	2	25+TT	12-TT
34	23	0	4.5	0	0	18.5	4.0	2	25+TT	14.5-TT
35	23	0	4.5	0	1.5	17	5.0	2	25+TT	12-TT
36	23	0	4.5	0	0	18.5	4.0	2	25+TT	14.5-TT
37	23	0	3	5.5	1.5	16	5.0	2	25+TT	11-TT
38	23	0	3	5.5	1.5	16	5.0	2	25+TT	11-TT

Test ID	$P_{PowerClass}$ (dBm)	$\Delta P_{PowerClass}$ (dB)	MPR (dB)	A-MPR (dB)	$\Delta T_{C,c}$ (dB)	$P_{CMAX,c}$ (dBm)	$T(P_{CMAX\_L,c})$ (dB)	$T_{L,c}$ (dB)	Upper limit (dBm)	Lower limit (Note 2) (dBm)
39	23	0	3	0	1.5	18.5	4.0	2	25+TT	14.5-TT
40	23	0	3	0	0	20	2.5	2	25+TT	17.5-TT
41	23	0	3	0	1.5	18.5	4.0	2	25+TT	14.5-TT
42	23	0	3	0	0	20	2.5	2	25+TT	17.5-TT
43	23	0	3	5.5	1.5	16	5.0	2	25+TT	11-TT
44	23	0	3	5.5	1.5	16	5.0	2	25+TT	11-TT
45	23	0	3	0	1.5	18.5	4.0	2	25+TT	14.5-TT
46	23	0	3	0	0	20	2.5	2	25+TT	17.5-TT
47	23	0	3	0	1.5	18.5	4.0	2	25+TT	14.5-TT
48	23	0	3	0	0	20	2.5	2	25+TT	17.5-TT
49	23	0	3.5	5.5	1.5	16	5.0	2	25+TT	11-TT
50	23	0	3.5	5.5	1.5	16	5.0	2	25+TT	11-TT
51	23	0	3.5	0	1.5	18	4.0	2	25+TT	14-TT
52	23	0	3.5	0	0	19.5	3.5	2	25+TT	16-TT
53	23	0	3.5	0	1.5	18	4.0	2	25+TT	14-TT
54	23	0	3.5	0	0	19.5	3.5	2	25+TT	16-TT
55	23	0	6.5	8	1.5	13.5	5.0	2	25+TT	8.5-TT
56	23	0	6.5	6.5	1.5	15	5.0	2	25+TT	10-TT
57	23	0	6.5	0	1.5	15	5.0	2	25+TT	10-TT
58	23	0	6.5	0	0	16.5	5.0	2	25+TT	11.5-TT
59	23	0	6.5	0	1.5	15	5.0	2	25+TT	10-TT
60	23	0	6.5	0	0	16.5	5.0	2	25+TT	11.5-TT

NOTE 1: $P_{PowerClass}$ is the maximum UE power specified without taking into account the tolerance.
NOTE 2: For Band n41, refers to the transmission bandwidths confined within F_{UL_low} and F_{UL_low} + 4 MHz or F_{UL_high} – 4 MHz and F_{UL_high}, the lower limit shall be decreased by 1.0 dB for CP-OFDM 256 QAM and decreased by 1.5 dB for other modulations.
NOTE 3: TT=0.7 dB for $BW_{channel} \leq 40$ MHz; TT=1.0 dB for 40 MHz < $BW_{channel} \leq 100$ MHz.

Table 6.2I.3.5-3: UE Power Class 3 test requirements (NS_03 and NS_03U) for band n66, n70

Test ID	Network signalling label	$P_{PowerClass}$ (dBm)	MPR (dB)	A-MPR (dB)	$\Delta T_{C,c}$ (dB)	$P_{CMAX\_L,c}$ (dBm)	$T(P_{CMAX\_L,c})$ (dB)	$T_{L,c}$ (dB)	Upper limit (dBm)	Lower limit (dBm)
1, 2	NS_03	23	0.5	1.5	0	21.5	2	2	25+TT	19.5-TT
	NS_03U	23	0.5	2	0	21	2	2	25+TT	19-TT
3	NS_03	23	0.5	1.5	0	21.5	2	2	25+TT	19.5-TT
	NS_03U	23	0.5	2	0	21	2	2	25+TT	19-TT
4, 5	NS_03, NS_03U	23	1	2	0	21	2	2	25+TT	19-TT
6	NS_03, NS_03U	23	1	2	0	21	2	2	25+TT	19-TT
7, 8	NS_03, NS_03U	23	2	3	0	20	2.5	2	25+TT	17.5-TT
9	NS_03, NS_03U	23	2	3	0	20	2.5	2	25+TT	17.5-TT
10, 11	NS_03, NS_03U	23	2.5	3.5	0	19.5	3.5	2	25+TT	16-TT
12	NS_03, NS_03U	23	2.5	3.5	0	19.5	3.5	2	25+TT	16-TT
13, 14	NS_03, NS_03U	23	4.5	5.5	0	17.5	5	2	25+TT	12.5-TT
15	NS_03, NS_03U	23	4.5	5.5	0	17.5	5	2	25+TT	12.5-TT
16, 17	NS_03, NS_03U	23	3	4	0	19	3.5	2	25+TT	15.5-TT
18	NS_03, NS_03U	23	3	4	0	19	3.5	2	25+TT	15.5-TT
19, 20	NS_03, NS_03U	23	3	4	0	19	3.5	2	25+TT	15.5-TT
21	NS_03, NS_03U	23	3	4	0	19	3.5	2	25+TT	15.5-TT
22, 23	NS_03, NS_03U	23	3.5	4.5	0	18.5	4	2	25+TT	14.5-TT
24	NS_03, NS_03U	23	3.5	4.5	0	18.5	4	2	25+TT	14.5-TT
25, 26	NS_03, NS_03U	23	6.5	7.5	0	15.5	5	2	25+TT	10.5-TT
27	NS_03, NS_03U	23	6.5	7.5	0	15.5	5	2	25+TT	10.5-TT

NOTE 1: $P_{PowerClass}$ is the maximum UE power specified without taking into account the tolerance.
NOTE 2: TT for each frequency and channel bandwidth is specified in Table 6.2I.3.5-0.

Table 6.2I.3.5-4: UE Power Class 3 test requirements (NS_03 and NS_03U) for band n2, n25

Test ID	Network signalling label	$P_{PowerClass}$ (dBm)	MPR (dB)	A-MPR (dB)	$\Delta T_{C,c}$ (dB)	$P_{CMAX\_L,c}$ (dBm)	$T(P_{CMAX\_L,c})$ (dB)	$T_{L,c}$ (dB)	Upper limit (dBm)	Lower limit (dBm)
1, 2	NS_03	23	0.5	1.5	1.5	20	2.5	2	25+TT	17.5-TT
	NS_03U	23	0.5	2	1.5	19.5	3.5	2	25+TT	16-TT
3	NS_03	23	0.5	1.5	0	21.5	2	2	25+TT	19.5-TT
	NS_03U	23	0.5	2	0	21	2	2	25+TT	19-TT
4, 5	NS_03; NS_03U	23	1	2	1.5	19.5	3.5	2	25+TT	16-TT
6	NS_03; NS_03U	23	1	2	0	21	2	2	25+TT	19-TT
7, 8	NS_03; NS_03U	23	2	3	1.5	18.5	4	2	25+TT	14.5-TT
9	NS_03; NS_03U	23	2	3	0	20	2.5	2	25+TT	17.5-TT
10, 11	NS_03; NS_03U	23	2.5	3.5	1.5	18	4	2	25+TT	14-TT
12	NS_03; NS_03U	23	2.5	3.5	0	19.5	3.5	2	25+TT	16-TT
13, 14	NS_03; NS_03U	23	4.5	5.5	1.5	16	5	2	25+TT	11-TT
15	NS_03; NS_03U	23	4.5	5.5	0	17.5	5	2	25+TT	12.5-TT
16, 17	NS_03; NS_03U	23	3	4	1.5	17.5	5	2	25+TT	12.5-TT
18	NS_03; NS_03U	23	3	4	0	19	3.5	2	25+TT	15.5-TT
19, 20	NS_03; NS_03U	23	3	4	1.5	17.5	5	2	25+TT	12.5-TT
21	NS_03; NS_03U	23	3	4	0	19	3.5	2	25+TT	15.5-TT
22, 23	NS_03; NS_03U	23	3.5	4.5	1.5	17	5	2	25+TT	12-TT
24	NS_03; NS_03U	23	3.5	4.5	0	18.5	4	2	25+TT	14.5-TT
25, 26	NS_03; NS_03U	23	6.5	7.5	1.5	14	5	2	25+TT	9-TT
27	NS_03; NS_03U	23	6.5	7.5	0	15.5	5	2	25+TT	10.5-TT

NOTE 1: $P_{PowerClass}$ is the maximum UE power specified without taking into account the tolerance.
NOTE 2: TT for each frequency and channel bandwidth is specified in Table 6.2I.3.5-0.

Table 6.2I.3.5-5: UE Power Class 3 test requirements (NS_05) for bands n1, n65

Test ID	$P_{PowerClass}$ (dBm)	$\Delta P_{PowerClass}$ (dB)	MPR (dB)	A-MPR (dB)	$\Delta T_{C,c}$ (dB)	$P_{CMAX\_L,c}$ (dBm)	$T(P_{CMAX\_L,c})$ (dB)	$T_{L,c}$ (dB)	Upper limit (dBm)	Lower limit (dBm)
1	23	0	0.5	4	0	19	3.5	2	25+TT	15.5-TT
2	23	0	0.5	10	0	13	5	2	25+TT	8-TT
3	23	0	0.5	6	0	17	5	2	25+TT	12-TT
4	23	0	0.5	5	0	18	4	2	25+TT	14-TT
5	23	0	0.5	1	0	22	2.0	2	25+TT	20-TT
6	23	0	0.5	10	0	13	5.0	2	25+TT	8-TT
7	23	0	0.5	6	0	17	5.0	2	25+TT	12-TT
8	23	0	0.5	5	0	18	4.0	2	25+TT	14-TT
9	23	0	0.5	10	0	13	5.0	2	25+TT	8-TT
10	23	0	0.5	5	0	18	4.0	2	25+TT	14-TT
11	23	0	0.5	1	0	22	2.0	2	25+TT	20-TT
12	23	0	0.5	10	0	13	5.0	2	25+TT	8-TT
13	23	0	0.5	6	0	17	5.0	2	25+TT	12-TT
14	23	0	0.5	5	0	18	4.0	2	25+TT	14-TT
15	23	0	0.5	1	0	22	2.0	2	25+TT	20-TT
16	23	0	1.0	4.5	0	18.5	4.0	2	25+TT	14.5-TT
17	23	0	1.0	10	0	13	5.0	2	25+TT	8-TT
18	23	0	1.0	6	0	17	5.0	2	25+TT	12-TT
19	23	0	1.0	5	0	18	4.0	2	25+TT	14-TT
20	23	0	1.0	10	0	13	5.0	2	25+TT	8-TT
21	23	0	1.0	6	0	17	5.0	2	25+TT	12-TT
22	23	0	1.0	5	0	18	4.0	2	25+TT	14-TT
23	23	0	1.0	10	0	13	5.0	2	25+TT	8-TT
24	23	0	1.0	5	0	18	4.0	2	25+TT	14-TT
25	23	0	1.0	1.5	0	21.5	2.0	2	25+TT	19.5-TT
26	23	0	1.0	10	0	13	5.0	2	25+TT	8-TT
27	23	0	1.0	6	0	17	5.0	2	25+TT	12-TT
28	23	0	1.0	5	0	18	4.0	2	25+TT	14-TT
29	23	0	1.0	1.5	0	21.5	2.0	2	25+TT	19.5-TT
30	23	0	2.0	6	0	17	5.0	2	25+TT	12-TT
31	23	0	2.0	10	0	13	5.0	2	25+TT	8-TT
32	23	0	2.0	6	0	17	5.0	2	25+TT	12-TT
33	23	0	2.0	5	0	18	4.0	2	25+TT	14-TT
34	23	0	2.0	10	0	13	5.0	2	25+TT	8-TT
35	23	0	2.0	6	0	17	5.0	2	25+TT	12-TT
36	23	0	2.0	5	0	18	4.0	2	25+TT	14-TT
37	23	0	2.0	10	0	13	5.0	2	25+TT	8-TT
38	23	0	2.0	5	0	18	4.0	2	25+TT	14-TT
39	23	0	2.0	10	0	13	5.0	2	25+TT	8-TT
40	23	0	2.0	6	0	17	5.0	2	25+TT	12-TT
41	23	0	2.0	5	0	18	4.0	2	25+TT	14-TT
42	23	0	2.5	6	0	17	5.0	2	25+TT	12-TT
43	23	0	2.5	11	0	12	6.0	2	25+TT	6-TT
44	23	0	2.5	6	0	17	5.0	2	25+TT	12-TT
45	23	0	2.5	5	0	18	4.0	2	25+TT	14-TT
46	23	0	2.5	11	0	12	6.0	2	25+TT	6-TT
47	23	0	2.5	6	0	17	5.0	2	25+TT	12-TT
48	23	0	2.5	5	0	18	4.0	2	25+TT	14-TT
49	23	0	2.5	11	0	12	6.0	2	25+TT	6-TT
50	23	0	2.5	5	0	18	4.0	2	25+TT	14-TT
51	23	0	2.5	11	0	12	6.0	2	25+TT	6-TT
52	23	0	2.5	6	0	17	5.0	2	25+TT	12-TT
53	23	0	2.5	5	0	18	4.0	2	25+TT	14-TT
54	23	0	4.5	7	0	16	5.0	2	25+TT	11-TT
55	23	0	4.5	13	0	10	6.0	2	25+TT	4-TT
56	23	0	4.5	6	0	17	5.0	2	25+TT	12-TT
57	23	0	4.5	5	0	18	4.0	2	25+TT	14-TT
58	23	0	4.5	13	0	10	6.0	2	25+TT	4-TT
59	23	0	4.5	6	0	17	5.0	2	25+TT	12-TT

Test ID	$P_{PowerClass}$ (dBm)	$\Delta P_{PowerClass}$ (dB)	MPR (dB)	A-MPR (dB)	$\Delta T_{C,c}$ (dB)	$P_{CMAX\_L,c}$ (dBm)	$T(P_{CMAX\_L,c})$ (dB)	$T_{L,c}$ (dB)	Upper limit (dBm)	Lower limit (dBm)
60	23	0	4.5	5	0	18	4.0	2	25+TT	14-TT
61	23	0	4.5	13	0	10	6.0	2	25+TT	4-TT
62	23	0	4.5	5	0	18	4.0	2	25+TT	14-TT
63	23	0	4.5	13	0	10	6.0	2	25+TT	4-TT
64	23	0	4.5	6	0	17	5.0	2	25+TT	12-TT
65	23	0	4.5	5	0	18	4.0	2	25+TT	14-TT
66	23	0	3.0	7.5	0	15.5	5.0	2	25+TT	10.5-TT
67	23	0	3.0	10	0	13	5.0	2	25+TT	8-TT
68	23	0	3.0	6	0	17	5.0	2	25+TT	12-TT
69	23	0	3.0	5	0	18	4.0	2	25+TT	14-TT
70	23	0	3.0	3.5	0	19.5	3.5	2	25+TT	16-TT
71	23	0	3.0	10	0	13	5.0	2	25+TT	8-TT
72	23	0	3.0	6	0	17	5.0	2	25+TT	12-TT
73	23	0	3.0	5	0	18	4.0	2	25+TT	14-TT
74	23	0	3.0	10	0	13	5.0	2	25+TT	8-TT
75	23	0	3.0	5	0	18	4.0	2	25+TT	14-TT
76	23	0	3.0	3.5	0	19.5	3.5	2	25+TT	16-TT
77	23	0	3.0	10	0	13	5.0	2	25+TT	8-TT
78	23	0	3.0	6	0	17	5.0	2	25+TT	12-TT
79	23	0	3.0	5	0	18	4.0	2	25+TT	14-TT
80	23	0	3.0	3.5	0	19.5	3.5	2	25+TT	16-TT
81	23	0	3.0	7.5	0	15.5	5.0	2	25+TT	10.5-TT
82	23	0	3.0	10	0	13	5.0	2	25+TT	8-TT
83	23	0	3.0	6	0	17	5.0	2	25+TT	12-TT
84	23	0	3.0	5	0	18	4.0	2	25+TT	14-TT
85	23	0	3.0	3.5	0	19.5	3.5	2	25+TT	16-TT
86	23	0	3.0	10	0	13	5.0	2	25+TT	8-TT
87	23	0	3.0	6	0	17	5.0	2	25+TT	12-TT
88	23	0	3.0	5	0	18	4.0	2	25+TT	14-TT
89	23	0	3.0	10	0	13	5.0	2	25+TT	8-TT
90	23	0	3.0	5	0	18	4.0	2	25+TT	14-TT
91	23	0	3.0	3.5	0	19.5	3.5	2	25+TT	16-TT
92	23	0	3.0	10	0	13	5.0	2	25+TT	8-TT
93	23	0	3.0	6	0	17	5.0	2	25+TT	12-TT
94	23	0	3.0	5	0	18	4.0	2	25+TT	14-TT
95	23	0	3.0	3.5	0	19.5	3.5	2	25+TT	16-TT
96	23	0	3.5	8	0	15	5.0	2	25+TT	10-TT
97	23	0	3.5	11	0	12	6.0	2	25+TT	6-TT
98	23	0	3.5	6	0	17	5.0	2	25+TT	12-TT
99	23	0	3.5	5	0	18	4.0	2	25+TT	14-TT
100	23	0	3.5	11	0	12	6.0	2	25+TT	6-TT
101	23	0	3.5	6	0	17	5.0	2	25+TT	12-TT
102	23	0	3.5	5	0	18	4.0	2	25+TT	14-TT
103	23	0	3.5	11	0	12	6.0	2	25+TT	6-TT
104	23	0	3.5	5	0	18	4.0	2	25+TT	14-TT
105	23	0	3.5	11	0	12	6.0	2	25+TT	6-TT
106	23	0	3.5	6	0	17	5.0	2	25+TT	12-TT
107	23	0	3.5	5	0	18	4.0	2	25+TT	14-TT
108	23	0	6.5	10	0	13	5.0	2	25+TT	8-TT
109	23	0	6.5	13	0	10	6.0	2	25+TT	4-TT
110	23	0	6.5	6	0	16.5	5.0	2	25+TT	11.5-TT
111	23	0	6.5	13	0	10	6.0	2	25+TT	4-TT
112	23	0	6.5	6	0	16.5	5.0	2	25+TT	11.5-TT
113	23	0	6.5	13	0	10	6.0	2	25+TT	4-TT
114	23	0	6.5	13	0	10	6.0	2	25+TT	4-TT
115	23	0	6.5	6	0	16.5	5.0	2	25+TT	11.5-TT

NOTE 1: $P_{PowerClass}$ is the maximum UE power specified without taking into account the tolerance.
NOTE 2: TT for each frequency and channel bandwidth is specified in Table 6.2I.3.5-0.

Table 6.2I.3.5-6: UE Power Class 3 test requirements (NS_05U) for bands n1, n65

Test ID	$P_{PowerClass}$ (dBm)	$\Delta P_{PowerClass}$ (dB)	MPR (dB)	A-MPR (dB)	$\Delta T_{C,c}$ (dB)	$P_{CMAX\_L,c}$ (dBm)	$T(P_{CMAX\_L,c})$ (dB)	$T_{L,c}$ (dB)	Upper limit (dBm)	Lower limit (dBm)
1	23	0	0.5	4	0	19	3.5	2	25+TT	15.5-TT
2	23	0	0.5	10	0	13	5	2	25+TT	8-TT
3	23	0	0.5	6	0	17	5	2	25+TT	12-TT
4	23	0	0.5	5	0	18	4	2	25+TT	14-TT
5	23	0	0.5	2	0	21	2.0	2	25+TT	19-TT
6	23	0	0.5	10	0	13	5.0	2	25+TT	8-TT
7	23	0	0.5	6	0	17	5.0	2	25+TT	12-TT
8	23	0	0.5	5	0	18	4.0	2	25+TT	14-TT
9	23	0	0.5	10	0	13	5.0	2	25+TT	8-TT
10	23	0	0.5	5	0	18	4.0	2	25+TT	14-TT
11	23	0	0.5	2	0	21	2.0	2	25+TT	19-TT
12	23	0	0.5	10	0	13	5.0	2	25+TT	8-TT
13	23	0	0.5	6	0	17	5.0	2	25+TT	12-TT
14	23	0	0.5	5	0	18	4.0	2	25+TT	14-TT
15	23	0	0.5	2	0	21	2.0	2	25+TT	19-TT
16	23	0	1.0	4.5	0	18.5	4.0	2	25+TT	14.5-TT
17	23	0	1.0	10	0	13	5.0	2	25+TT	8-TT
18	23	0	1.0	6	0	17	5.0	2	25+TT	12-TT
19	23	0	1.0	5	0	18	4.0	2	25+TT	14-TT
20	23	0	1.0	2	0	21	2.0	2	25+TT	19-TT
21	23	0	1.0	10	0	13	5.0	2	25+TT	8-TT
22	23	0	1.0	6	0	17	5.0	2	25+TT	12-TT
23	23	0	1.0	5	0	18	4.0	2	25+TT	14-TT
24	23	0	1.0	10	0	13	5.0	2	25+TT	8-TT
25	23	0	1.0	5	0	18	4.0	2	25+TT	14-TT
26	23	0	1.0	2	0	21	2.0	2	25+TT	19-TT
27	23	0	1.0	10	0	13	5.0	2	25+TT	8-TT
28	23	0	1.0	6	0	17	5.0	2	25+TT	12-TT
29	23	0	1.0	5	0	18	4.0	2	25+TT	14-TT
30	23	0	1.0	2	0	21	2.0	2	25+TT	19-TT
31	23	0	2.0	6	0	17	5.0	2	25+TT	12-TT
32	23	0	2.0	10	0	13	5.0	2	25+TT	8-TT
33	23	0	2.0	6	0	17	5.0	2	25+TT	12-TT
34	23	0	2.0	5	0	18	4.0	2	25+TT	14-TT
35	23	0	2.0	2.5	0	20.5	2.5	2	25+TT	18-TT
36	23	0	2.0	10	0	13	5.0	2	25+TT	8-TT
37	23	0	2.0	6	0	17	5.0	2	25+TT	12-TT
38	23	0	2.0	5	0	18	4.0	2	25+TT	14-TT
39	23	0	2.0	10	0	13	5.0	2	25+TT	8-TT
40	23	0	2.0	5	0	18	4.0	2	25+TT	14-TT
41	23	0	2.0	2.5	0	20.5	2.5	2	25+TT	18-TT
42	23	0	2.0	10	0	13	5.0	2	25+TT	8-TT
43	23	0	2.0	6	0	17	5.0	2	25+TT	12-TT
44	23	0	2.0	5	0	18	4.0	2	25+TT	14-TT
45	23	0	2.0	2.5	0	20.5	2.5	2	25+TT	18-TT
46	23	0	2.5	6	0	17	5.0	2	25+TT	12-TT
47	23	0	2.5	11	0	12	6.0	2	25+TT	6-TT
48	23	0	2.5	6	0	17	5.0	2	25+TT	12-TT
49	23	0	2.5	5	0	18	4.0	2	25+TT	14-TT
50	23	0	2.5	3	0	20	2.5	2	25+TT	17.5-TT
51	23	0	2.5	11	0	12	6.0	2	25+TT	6-TT
52	23	0	2.5	6	0	17	5.0	2	25+TT	12-TT
53	23	0	2.5	5	0	18	4.0	2	25+TT	14-TT
54	23	0	2.5	11	0	12	6.0	2	25+TT	6-TT
55	23	0	2.5	5	0	18	4.0	2	25+TT	14-TT
56	23	0	2.5	3	0	20	2.5	2	25+TT	17.5-TT
57	23	0	2.5	11	0	12	6.0	2	25+TT	6-TT
58	23	0	2.5	6	0	17	5.0	2	25+TT	12-TT
59	23	0	2.5	5	0	18	4.0	2	25+TT	14-TT

Test ID	$P_{PowerClass}$ (dBm)	$\Delta P_{PowerClass}$ (dB)	MPR (dB)	A-MPR (dB)	$\Delta T_{C,c}$ (dB)	$P_{CMAX\_L,c}$ (dBm)	$T(P_{CMAX\_L,c})$ (dB)	$T_{L,c}$ (dB)	Upper limit (dBm)	Lower limit (dBm)
60	23	0	2.5	3	0	20	2.5	2	25+TT	17.5-TT
61	23	0	4.5	7	0	16	5.0	2	25+TT	11-TT
62	23	0	4.5	13	0	10	6.0	2	25+TT	4-TT
63	23	0	4.5	6	0	17	5.0	2	25+TT	12-TT
64	23	0	4.5	5	0	18	4.0	2	25+TT	14-TT
65	23	0	4.5	4.5	0	18.5	4.0	2	25+TT	14.5-TT
66	23	0	4.5	13	0	10	6.0	2	25+TT	4-TT
67	23	0	4.5	6	0	17	5.0	2	25+TT	12-TT
68	23	0	4.5	5	0	18	4.0	2	25+TT	14-TT
69	23	0	4.5	13	0	10	6.0	2	25+TT	4-TT
70	23	0	4.5	5	0	18	4.0	2	25+TT	14-TT
71	23	0	4.5	4.5	0	18.5	4.0	2	25+TT	14.5-TT
72	23	0	4.5	13	0	10	6.0	2	25+TT	4-TT
73	23	0	4.5	6	0	17	5.0	2	25+TT	12-TT
74	23	0	4.5	5	0	18	4.0	2	25+TT	14-TT
75	23	0	4.5	4.5	0	18.5	4.0	2	25+TT	14.5-TT
76	23	0	3.0	7.5	0	15.5	5.0	2	25+TT	10.5-TT
77	23	0	3.0	10	0	13	5.0	2	25+TT	8-TT
78	23	0	3.0	6	0	17	5.0	2	25+TT	12-TT
79	23	0	3.0	5	0	18	4.0	2	25+TT	14-TT
80	23	0	3.0	4	0	19	3.5	2	25+TT	15.5-TT
81	23	0	3.0	10	0	13	5.0	2	25+TT	8-TT
82	23	0	3.0	6	0	17	5.0	2	25+TT	12-TT
83	23	0	3.0	5	0	18	4.0	2	25+TT	14-TT
84	23	0	3.0	10	0	13	5.0	2	25+TT	8-TT
85	23	0	3.0	5	0	18	4.0	2	25+TT	14-TT
86	23	0	3.0	4	0	19	3.5	2	25+TT	15.5-TT
87	23	0	3.0	10	0	13	5.0	2	25+TT	8-TT
88	23	0	3.0	6	0	17	5.0	2	25+TT	12-TT
89	23	0	3.0	5	0	18	4.0	2	25+TT	14-TT
90	23	0	3.0	4	0	19	3.5	2	25+TT	15.5-TT
91	23	0	3.0	7.5	0	15.5	5.0	2	25+TT	10.5-TT
92	23	0	3.0	10	0	13	5.0	2	25+TT	8-TT
93	23	0	3.0	6	0	17	5.0	2	25+TT	12-TT
94	23	0	3.0	5	0	18	4.0	2	25+TT	14-TT
95	23	0	3.0	4	0	19	3.5	2	25+TT	15.5-TT
96	23	0	3.0	10	0	13	5.0	2	25+TT	8-TT
97	23	0	3.0	6	0	17	5.0	2	25+TT	12-TT
98	23	0	3.0	5	0	18	4.0	2	25+TT	14-TT
99	23	0	3.0	10	0	13	5.0	2	25+TT	8-TT
100	23	0	3.0	5	0	18	4.0	2	25+TT	14-TT
101	23	0	3.0	4	0	19	3.5	2	25+TT	15.5-TT
102	23	0	3.0	10	0	13	5.0	2	25+TT	8-TT
103	23	0	3.0	6	0	17	5.0	2	25+TT	12-TT
104	23	0	3.0	5	0	18	4.0	2	25+TT	14-TT
105	23	0	3.0	4	0	19	3.5	2	25+TT	15.5-TT
106	23	0	3.5	8	0	15	5.0	2	25+TT	10-TT
107	23	0	3.5	11	0	12	6.0	2	25+TT	6-TT
108	23	0	3.5	6	0	17	5.0	2	25+TT	12-TT
109	23	0	3.5	5	0	18	4.0	2	25+TT	14-TT
110	23	0	3.5	4	0	19	3.5	2	25+TT	15.5-TT
111	23	0	3.5	11	0	12	6.0	2	25+TT	6-TT
112	23	0	3.5	6	0	17	5.0	2	25+TT	12-TT
113	23	0	3.5	5	0	18	4.0	2	25+TT	14-TT
114	23	0	3.5	11	0	12	6.0	2	25+TT	6-TT
115	23	0	3.5	5	0	18	4.0	2	25+TT	14-TT
116	23	0	3.5	4	0	19	3.5	2	25+TT	15.5-TT
117	23	0	3.5	11	0	12	6.0	2	25+TT	6-TT
118	23	0	3.5	6	0	17	5.0	2	25+TT	12-TT
119	23	0	3.5	5	0	18	4.0	2	25+TT	14-TT

Test ID	$P_{PowerClass}$ (dBm)	$\Delta P_{PowerClass}$ (dB)	MPR (dB)	A-MPR (dB)	$\Delta T_{C,c}$ (dB)	$P_{CMAX\_L,c}$ (dBm)	$T(P_{CMAX\_L,c})$ (dB)	$T_{L,c}$ (dB)	Upper limit (dBm)	Lower limit (dBm)
120	23	0	3.5	4	0	19	3.5	2	25+TT	15.5-TT
121	23	0	6.5	10	0	13	5.0	2	25+TT	8-TT
122	23	0	6.5	13	0	10	6.0	2	25+TT	4-TT
123	23	0	6.5	6.5	0	16.5	5.0	2	25+TT	11.5-TT
124	23	0	6.5	6.5	0	16.5	5.0	2	25+TT	11.5-TT
125	23	0	6.5	13	0	10	6.0	2	25+TT	4-TT
126	23	0	6.5	6.5	0	16.5	5.0	2	25+TT	11.5-TT
127	23	0	6.5	13	0	10	6.0	2	25+TT	4-TT
128	23	0	6.5	6.5	0	16.5	5.0	2	25+TT	11.5-TT
129	23	0	6.5	13	0	10	6.0	2	25+TT	4-TT
130	23	0	6.5	6.5	0	16.5	5.0	2	25+TT	11.5-TT
131	23	0	6.5	6.5	0	16.5	5.0	2	25+TT	11.5-TT
NOTE 1: $P_{PowerClass}$ is the maximum UE power specified without taking into account the tolerance. NOTE 2: TT for each frequency and channel bandwidth is specified in Table 6.2I.3.5-0.										

Table 6.2I.3.5-7: UE Power Class 3 test requirements (NS_18)

Test ID	ChBw (MHz)	$P_{PowerClass}$ (dBm)	MPR (dB)	A-MPR (dB)	$\Delta T_{C,c}$ (dB)	$P_{CMAX\_L,c}$ (dBm)	$T(P_{CMAX\_L,c})$ (dB)	$T_{L,c}$ (dB)	Upper limit (dBm)	Lower limit (dBm)
1, 2	5	23	1	2	0	21	2	2.5	25+TT	18.5-TT
	10, 15, 20	23	1	5	0	18	4	2.5	25+TT	14-TT
3, 4	5	23	2	3	0	20	2.5	2.5	25+TT	17.5-TT
	10, 15, 20	23	2	6	0	17	5	2.5	25+TT	12-TT
5, 6	5	23	2.5	4	0	19	3.5	2.5	25+TT	15.5-TT
	10, 15, 20	23	2.5	7	0	16	5	2.5	25+TT	11-TT
7, 8	5	23	4.5	6	0	17	5	2.5	25+TT	12-TT
	10, 15, 20	23	4.5	9	0	14	5	2.5	25+TT	9-TT
9, 10	5	23	3	5	0	18	4	2.5	25+TT	14-TT
	10, 15, 20	23	3	6.5	0	16.5	5	2.5	25+TT	11.5-TT
11, 12	5	23	3	5	0	18	4	2.5	25+TT	14-TT
	10, 15, 20	23	3	7	0	16	5	2.5	25+TT	11-TT
13, 14	5	23	3.5	5.5	0	17.5	5	2.5	25+TT	12.5-TT
	10, 15, 20	23	3.5	8.5	0	14.5	5	2.5	25+TT	9.5-TT
15, 16	5	23	6.5	8.5	0	14.5	5	2.5	25+TT	9.5-TT
	10, 15, 20	23	6.5	11.5	0	11.5	6	2.5	25+TT	5.5-TT

Table 6.2I.3.5-8: UE Power Class 3 test requirements (NS_43)

Test ID	$P_{PowerClass}$ (dBm)	MPR (dB)	A-MPR (dB)	$\Delta T_{C,c}$ (dB)	$P_{CMAX\_L,c}$ (dBm)	$T(P_{CMAX\_L,c})$ (dB)	$T_{L,c}$ (dB)	Upper limit (dBm)	Lower limit (dBm)
1	23	0.5	1.5	0	21.5	2	2	25+TT	19.5-TT
2	23	0.5	9	0	14	5	2	25+TT	9-TT
3	23	0.5	9	0	14	5	2	25+TT	9-TT
4	23	1.0	2	0	21	2.0	2	25+TT	19-TT
5	23	1.0	2.5	0	20.5	2.5	2	25+TT	18-TT
6	23	1.0	9	0	14	5.0	2	25+TT	9-TT
7	23	1.0	9	0	14	5.0	2	25+TT	9-TT
8	23	2.0	2.5	0	20.5	2.5	2	25+TT	18-TT
9	23	2.0	9	0	14	5.0	2	25+TT	9-TT
10	23	2.0	9	0	14	5.0	2	25+TT	9-TT
11	23	2.5	2.5	0	20.5	2.5	2	25+TT	18-TT
12	23	2.5	9	0	14	5.0	2	25+TT	9-TT
13	23	2.5	9	0	14	5.0	2	25+TT	9-TT
14	23	4.5	9	0	14	5.0	2	25+TT	9-TT
15	23	4.5	9	0	14	5.0	2	25+TT	9-TT
16	23	3.0	3.5	0	19.5	3.5	2	25+TT	16-TT
17	23	3.0	4	0	19	3.5	2	25+TT	15.5-TT
18	23	3.0	9	0	14	5.0	2	25+TT	9-TT
19	23	3.0	9	0	14	5.0	2	25+TT	9-TT
20	23	3.0	3.5	0	19.5	3.5	2	25+TT	16-TT
21	23	3.0	4	0	19	3.5	2	25+TT	15.5-TT
22	23	3.0	9	0	14	5.0	2	25+TT	9-TT
23	23	3.0	9	0	14	5.0	2	25+TT	9-TT
24	23	3.5	4	0	19	3.5	2	25+TT	15.5-TT
25	23	3.5	9	0	14	5.0	2	25+TT	9-TT
26	23	3.5	9	0	14	5.0	2	25+TT	9-TT
27	23	6.5	9	0	14	5.0	2	25+TT	9-TT
28	23	6.5	9	0	14	5.0	2	25+TT	9-TT

NOTE 1: $P_{PowerClass}$ is the maximum UE power specified without taking into account the tolerance.
NOTE 2: TT for each frequency and channel bandwidth is specified in Table 6.2I.3.5-0.

Table 6.2I.3.5-9: UE Power Class 3 test requirements (NS_43U)

Test ID	$P_{PowerClass}$ (dBm)	MPR (dB)	A-MPR (dB)	$\Delta T_{C,c}$ (dB)	$P_{CMAX\_L,c}$ (dBm)	$T(P_{CMAX\_L,c})$ (dB)	$T_{L,c}$ (dB)	Upper limit (dBm)	Lower limit (dBm)
1	23	0.5	2	0	21	2	2	25+TT	19-TT
2	23	0.5	2	0	21	2	2	25+TT	19-TT
3	23	0.5	9	0	14	5	2	25+TT	9-TT
4	23	0.5	9	0	14	5	2	25+TT	9-TT
5	23	1.0	2	0	21	2.0	2	25+TT	19-TT
6	23	1.0	2.5	0	20.5	2.5	2	25+TT	18-TT
7	23	1.0	9	0	14	5.0	2	25+TT	9-TT
8	23	1.0	9	0	14	5.0	2	25+TT	9-TT
9	23	2.0	2.5	0	20.5	2.5	2	25+TT	18-TT
10	23	2.0	2.5	0	20.5	2.5	2	25+TT	18-TT
11	23	2.0	9	0	14	5.0	2	25+TT	9-TT
12	23	2.0	9	0	14	5.0	2	25+TT	9-TT
13	23	2.5	3	0	20	2.5	2	25+TT	17.5-TT
14	23	2.5	3	0	20	2.5	2	25+TT	17.5-TT
15	23	2.5	9	0	14	5.0	2	25+TT	9-TT
16	23	2.5	9	0	14	5.0	2	25+TT	9-TT
17	23	4.5	4.5	0	18.5	4.0	2	25+TT	14.5-TT
18	23	4.5	4.5	0	18.5	4.0	2	25+TT	14.5-TT
19	23	4.5	9	0	14	5.0	2	25+TT	9-TT
20	23	4.5	9	0	14	5.0	2	25+TT	9-TT
21	23	3.0	4	0	19	3.5	2	25+TT	15.5-TT
22	23	3.0	4	0	19	3.5	2	25+TT	15.5-TT
23	23	3.0	9	0	14	5.0	2	25+TT	9-TT
24	23	3.0	9	0	14	5.0	2	25+TT	9-TT
25	23	3.0	4	0	19	3.5	2	25+TT	15.5-TT
26	23	3.0	4	0	19	3.5	2	25+TT	15.5-TT
27	23	3.0	9	0	14	5.0	2	25+TT	9-TT
28	23	3.0	9	0	14	5.0	2	25+TT	9-TT
29	23	3.5	4	0	19	3.5	2	25+TT	15.5-TT
30	23	3.5	4	0	19	3.5	2	25+TT	15.5-TT
31	23	3.5	9	0	14	5.0	2	25+TT	9-TT
32	23	3.5	9	0	14	5.0	2	25+TT	9-TT
33	23	6.5	6.5	0	16.5	5.0	2	25+TT	11.5-TT
34	23	6.5	6.5	0	16.5	5.0	2	25+TT	11.5-TT
35	23	6.5	9	0	14	5.0	2	25+TT	9-TT
36	23	6.5	9	0	14	5.0	2	25+TT	9-TT

NOTE 1: $P_{PowerClass}$ is the maximum UE power specified without taking into account the tolerance.
NOTE 2: TT for each frequency and channel bandwidth is specified in Table 6.2I.3.5-0.

Table 6.2I.3.5-10: UE Power Class 3 test requirements (NS_100) for band n1, n5, n18, n65, n66

Test ID	$P_{PowerClass}$ (dBm)	MPR (dB)	A-MPR (dB)	$\Delta T_{C,c}$ (dB)	$P_{CMAX\_L,c}$ (dBm)	$T(P_{CMAX\_L,c})$ (dB)	$T_{L,c}$ (dB)	Upper limit (dBm)	Lower limit (dBm)
1, 2	23	0.5	2	0	21	2	2	25+TT	19-TT
3	23	0.5	2	0	21	2	2	25+TT	19-TT
4, 5	23	1	1	0	21	2	2	25+TT	19-TT
6	23	1	1	0	21	2	2	25+TT	19-TT
7, 8	23	2	2.5	0	20.5	2.5	2	25+TT	18-TT
9	23	2	2.5	0	20.5	2.5	2	25+TT	18-TT
10, 11	23	2.5	3	0	20	2.5	2	25+TT	17.5-TT
12	23	2.5	3	0	20	2.5	2	25+TT	17.5-TT
13, 14	23	4.5	4.5	0	18.5	4	2	25+TT	14.5-TT
15	23	4.5	4.5	0	18.5	4	2	25+TT	14.5-TT
16, 17	23	3	4	0	19	3.5	2	25+TT	15.5-TT
18	23	3	4	0	19	3.5	2	25+TT	15.5-TT
19, 20	23	3	4	0	19	3.5	2	25+TT	15.5-TT
21	23	3	4	0	19	3.5	2	25+TT	15.5-TT
22, 23	23	3.5	4	0	19	3.5	2	25+TT	15.5-TT
24	23	3.5	4	0	19	3.5	2	25+TT	15.5-TT
25, 26	23	6.5	6.5	0	16.5	5	2	25+TT	11.5-TT
27	23	6.5	6.5	0	16.5	5	2	25+TT	11.5-TT

NOTE 1: $P_{PowerClass}$ is the maximum UE power specified without taking into account the tolerance.
NOTE 2: TT for each frequency and channel bandwidth is specified in Table 6.2I.3.5-0.

Table 6.2I.3.5-11: UE Power Class 3 test requirements (NS_100) for band n2, n3, n8, n25 and n26

Test ID	$P_{PowerClass}$ (dBm)	MPR (dB)	A-MPR (dB)	$\Delta T_{C,c}$ (dB)	$P_{CMAX\_L,c}$ (dBm)	$T(P_{CMAX\_L,c})$ (dB)	$T_{L,c}$ (dB)	Upper limit (dBm)	Lower limit (dBm)
1, 2	23	0.5	2	1.5	19.5	3.5	2	25+TT	16-TT
3	23	0.5	2	0	21	2	2	25+TT	19-TT
4, 5	23	1	1	1.5	19.5	3.5	2	25+TT	16-TT
6	23	1	1	0	21	2	2	25+TT	19-TT
7, 8	23	2	2.5	1.5	19	3.5	2	25+TT	15.5-TT
9	23	2	2.5	0	20.5	2.5	2	25+TT	18-TT
10, 11	23	2.5	3	1.5	18.5	4	2	25+TT	14.5-TT
12	23	2.5	3	0	20	2.5	2	25+TT	17.5-TT
13, 14	23	4.5	4.5	1.5	17	5	2	25+TT	12-TT
15	23	4.5	4.5	0	18.5	4	2	25+TT	14.5-TT
16, 17	23	3	4	1.5	17.5	5	2	25+TT	12.5-TT
18	23	3	4	0	19	3.5	2	25+TT	15.5-TT
19, 20	23	3	4	1.5	17.5	5	2	25+TT	12.5-TT
21	23	3	4	0	19	3.5	2	25+TT	15.5-TT
22, 23	23	3.5	4	1.5	17.5	5	2	25+TT	12.5-TT
24	23	3.5	4	0	19	3.5	2	25+TT	15.5-TT
25, 26	23	6.5	6.5	1.5	15	5	2	25+TT	10-TT
27	23	6.5	6.5	0	16.5	5	2	25+TT	11.5-TT

NOTE 1: $P_{PowerClass}$ is the maximum UE power specified without taking into account the tolerance.
NOTE 2: TT for each frequency and channel bandwidth is specified in Table 6.2I.3.5-0.

Table 6.2I.3.5-12: UE Power Class 3 test requirements (NS_37)

Test ID	$P_{PowerClass}$ (dBm)	$\Delta P_{PowerClass}$ (dB)	MPR (dB)	A-MPR (dB)	$\Delta T_{C,c}$ (dB)	$P_{CMAX\_L,c}$ (dBm)	$T(P_{CMAX\_L,C})$ (dB)	$T_{L,c}$ (dB)	Upper limit (dBm)	Lower limit (dBm)
1	23	0	0.5	1.0	0	22	2	2	25+TT	20-TT
2	23	0	0.5	1.0	0	22	2	2	25+TT	20-TT
3	23	0	0.5	3.0	0	20	2.5	2	25+TT	17.5-TT
4	23	0	0.5	3.0	0	20	2.5	2	25+TT	17.5-TT
5	23	0	1.0	1.5	0	21.5	2.0	2	25+TT	19.5-TT
6	23	0	1.0	1.5	0	21.5	2.0	2	25+TT	19.5-TT
7	23	0	1.0	3.0	0	20	2.5	2	25+TT	17.5-TT
8	23	0	1.0	3.0	0	20	2.5	2	25+TT	17.5-TT
9	23	0	2.0	2.5	0	20.5	2.5	2	25+TT	18-TT
10	23	0	2.0	2.5	0	20.5	2.5	2	25+TT	18-TT
11	23	0	2.0	3.0	0	20	2.5	2	25+TT	17.5-TT
12	23	0	2.0	3.0	0	20	2.5	2	25+TT	17.5-TT
13	23	0	2.5	3.0	0	20	2.5	2	25+TT	17.5-TT
14	23	0	2.5	3.0	0	20	2.5	2	25+TT	17.5-TT
15	23	0	2.5	3.0	0	20	2.5	2	25+TT	17.5-TT
16	23	0	2.5	3.0	0	20	2.5	2	25+TT	17.5-TT
17	23	0	3.0	3.5	0	19.5	3.5	2	25+TT	16-TT
18	23	0	3.0	3.5	0	19.5	3.5	2	25+TT	16-TT
19	23	0	3.0	3.0	0	20	2.5	2	25+TT	17.5-TT
20	23	0	3.0	3.0	0	20	2.5	2	25+TT	17.5-TT
21	23	0	3.0	3.5	0	19.5	3.5	2	25+TT	16-TT
22	23	0	3.0	3.5	0	19.5	3.5	2	25+TT	16-TT
23	23	0	3.0	3.0	0	20	2.5	2	25+TT	17.5-TT
24	23	0	3.0	3.0	0	20	2.5	2	25+TT	17.5-TT

NOTE 1: $P_{PowerClass}$ is the maximum UE power specified without taking into account the tolerance.
NOTE 2: TT for each frequency and channel bandwidth is specified in Table 6.2I.3.5-0.

Table 6.2I.3.5-13: UE Power Class 3 test requirements (NS_38)

Test ID	$P_{PowerClass}$ (dBm)	$\Delta P_{PowerClass}$ (dB)	MPR (dB)	A-MPR (dB)	$\Delta T_{C,c}$ (dB)	$P_{CMAX\_L,c}$ (dBm)	$T(P_{CMAX\_L,C})$ (dB)	$T_{L,c}$ (dB)	Upper limit (dBm)	Lower limit (dBm)
1	23	0	0.5	12	0	11	6.0	2	25+TT	5-TT
2	23	0	0.5	9	0	14	5.0	2	25+TT	9-TT
3	23	0	0.5	13	0	10	6.0	2	25+TT	4-TT
4	23	0	0.5	10	0	13	5.0	2	25+TT	8-TT
5	23	0	0.5	13	0	10	6.0	2	25+TT	4-TT
6	23	0	0.5	10	0	13	5.0	2	25+TT	8-TT
7	23	0	1.0	12	0	11	6.0	2	25+TT	5-TT
8	23	0	1.0	9	0	14	5.0	2	25+TT	9-TT
9	23	0	1.0	13	0	10	6.0	2	25+TT	4-TT
10	23	0	1.0	10	0	13	5.0	2	25+TT	8-TT
11	23	0	1.0	13	0	10	6.0	2	25+TT	4-TT
12	23	0	1.0	10	0	13	5.0	2	25+TT	8-TT
13	23	0	2.0	12	0	11	6.0	2	25+TT	5-TT
14	23	0	2.0	9	0	14	5.0	2	25+TT	9-TT
15	23	0	2.0	13	0	10	6.0	2	25+TT	4-TT
16	23	0	2.0	10	0	13	5.0	2	25+TT	8-TT
17	23	0	2.0	13	0	10	6.0	2	25+TT	4-TT
18	23	0	2.0	10	0	13	5.0	2	25+TT	8-TT
19	23	0	2.5	12	0	11	6.0	2	25+TT	5-TT
20	23	0	2.5	9	0	14	5.0	2	25+TT	9-TT
21	23	0	2.5	13	0	10	6.0	2	25+TT	4-TT
22	23	0	2.5	10	0	13	5.0	2	25+TT	8-TT
23	23	0	2.5	13	0	10	6.0	2	25+TT	4-TT
24	23	0	2.5	10	0	13	5.0	2	25+TT	8-TT
25	23	0	4.5	12	0	11	6.0	2	25+TT	5-TT
26	23	0	4.5	9	0	14	5.0	2	25+TT	9-TT
27	23	0	4.5	13	0	10	6.0	2	25+TT	4-TT
28	23	0	4.5	10	0	13	5.0	2	25+TT	8-TT
29	23	0	4.5	13	0	10	6.0	2	25+TT	4-TT
30	23	0	4.5	10	0	13	5.0	2	25+TT	8-TT
31	23	0	3.0	12	0	11	6.0	2	25+TT	5-TT
32	23	0	3.0	9	0	14	5.0	2	25+TT	9-TT
33	23	0	3.0	13	0	10	6.0	2	25+TT	4-TT
34	23	0	3.0	10	0	13	5.0	2	25+TT	8-TT
35	23	0	3.0	13	0	10	6.0	2	25+TT	4-TT
36	23	0	3.0	10	0	13	5.0	2	25+TT	8-TT
37	23	0	3.0	12	0	11	6.0	2	25+TT	5-TT
38	23	0	3.0	9	0	14	5.0	2	25+TT	9-TT
39	23	0	3.0	13	0	10	6.0	2	25+TT	4-TT
40	23	0	3.0	10	0	13	5.0	2	25+TT	8-TT
41	23	0	3.0	13	0	10	6.0	2	25+TT	4-TT
42	23	0	3.0	10	0	13	5.0	2	25+TT	8-TT
43	23	0	3.5	12	0	11	6.0	2	25+TT	5-TT
44	23	0	3.5	9	0	14	5.0	2	25+TT	9-TT
45	23	0	3.5	13	0	10	6.0	2	25+TT	4-TT

Test ID	$P_{PowerClass}$ (dBm)	$\Delta P_{PowerClass}$ (dB)	MPR (dB)	A-MPR (dB)	$\Delta T_{C,c}$ (dB)	$P_{CMAX\_L,c}$ (dBm)	$T(P_{CMAX\_L,c})$ (dB)	$T_{L,c}$ (dB)	Upper limit (dBm)	Lower limit (dBm)
46	23	0	3.5	10	0	13	5.0	2	25+TT	8-TT
47	23	0	3.5	13	0	10	6.0	2	25+TT	4-TT
48	23	0	3.5	10	0	13	5.0	2	25+TT	8-TT
49	23	0	6.5	12	0	11	6.0	2	25+TT	5-TT
50	23	0	6.5	9	0	14	5.0	2	25+TT	9-TT
51	23	0	6.5	13	0	10	6.0	2	25+TT	4-TT
52	23	0	6.5	10	0	13	5.0	2	25+TT	8-TT
53	23	0	6.5	13	0	10	6.0	2	25+TT	4-TT
54	23	0	6.5	10	0	13	5.0	2	25+TT	8-TT
NOTE 1: $P_{PowerClass}$ is the maximum UE power specified without taking into account the tolerance. NOTE 2: TT for each frequency and channel bandwidth is specified in Table 6.2I.3.5-0.										

Table 6.2I.3.5-14: UE Power Class 3 test requirements (NS_39)

Test ID	$P_{PowerClass}$ (dBm)	$\Delta P_{PowerClass}$ (dB)	MPR (dB)	A-MPR (dB)	$\Delta T_{C,c}$ (dB)	$P_{CMAX\_L,c}$ (dBm)	$T(P_{CMAX\_L,c})$ (dB)	$T_{L,c}$ (dB)	Upper limit (dBm)	Lower limit (dBm)
1	23	0	0.5	6	0	17	5.0	2	25+TT	12-TT
2	23	0	0.5	6	0	17	5.0	2	25+TT	12-TT
3	23	0	0.5	6	0	17	5.0	2	25+TT	12-TT
4	23	0	1.0	6	0	17	5.0	2	25+TT	12-TT
5	23	0	1.0	6	0	17	5.0	2	25+TT	12-TT
6	23	0	1.0	6	0	17	5.0	2	25+TT	12-TT
7	23	0	2.0	6	0	17	5.0	2	25+TT	12-TT
8	23	0	2.0	6	0	17	5.0	2	25+TT	12-TT
9	23	0	2.0	6	0	17	5.0	2	25+TT	12-TT
10	23	0	2.5	6	0	17	5.0	2	25+TT	12-TT
11	23	0	2.5	6	0	17	5.0	2	25+TT	12-TT
12	23	0	2.5	6	0	17	5.0	2	25+TT	12-TT
13	23	0	4.5	6	0	17	5.0	2	25+TT	12-TT
14	23	0	4.5	6	0	17	5.0	2	25+TT	12-TT
15	23	0	4.5	6	0	17	5.0	2	25+TT	12-TT
16	23	0	3.0	6	0	17	5.0	2	25+TT	12-TT
17	23	0	3.0	6	0	17	5.0	2	25+TT	12-TT
18	23	0	3.0	6	0	17	5.0	2	25+TT	12-TT
19	23	0	3.0	6	0	17	5.0	2	25+TT	12-TT
20	23	0	3.0	6	0	17	5.0	2	25+TT	12-TT
21	23	0	3.0	6	0	17	5.0	2	25+TT	12-TT
22	23	0	3.5	6	0	17	5.0	2	25+TT	12-TT
23	23	0	3.5	6	0	17	5.0	2	25+TT	12-TT
24	23	0	3.5	6	0	17	5.0	2	25+TT	12-TT
25	23	0	6.5	6	0	16.5	5.0	2	25+TT	11.5-TT
26	23	0	6.5	6	0	16.5	5.0	2	25+TT	11.5-TT
27	23	0	6.5	6	0	16.5	5.0	2	25+TT	11.5-TT
NOTE 1: $P_{PowerClass}$ is the maximum UE power specified without taking into account the tolerance. NOTE 2: TT for each frequency and channel bandwidth is specified in Table 6.2I.3.5-0.										

Table 6.2I.3.5-15: UE Power Class 3 test requirements (NS_24) for n65

Test ID	$P_{PowerClass}$ (dBm)	MPR (dB)	A-MPR (dB)	$\Delta T_{C,c}$ (dB)	$P_{CMAX\_L,c}$ (dBm)	$T(P_{CMAX\_L,c})$ (dB)	$T_{L,c}$ (dB)	Upper limit (dBm)	Lower limit (dBm)
1-3	23	N/A	3.5	0	19.5	3.5	2	25+TT	16-TT
4-6	23	N/A	8.5	0	14.5	5	2	25+TT	9.5-TT
7-15	23	N/A	11	0	12	6	2	25+TT	6-TT
	23	N/A	5	0	18	4	2	25+TT	14-TT
	23	N/A	4	0	19	3.5	2	25+TT	16-TT
16-18	23	N/A	8.5	0	14.5	5	2	25+TT	9.5-TT
19-21	23	N/A	8.5	0	14.5	5	2	25+TT	9.5-TT
22-30	23	N/A	11	0	12	6	2	25+TT	6-TT
	23	N/A	5	0	18	4	2	25+TT	14-TT
	23	N/A	4	0	19	3.5	2	25+TT	15.5-TT
31-39	23	N/A	18	0	5	7	2	25+TT	-2-TT
	23	N/A	18	0	5	7	2	25+TT	-2-TT
	23	N/A	10	0	13	5	2	25+TT	8-TT
40-42	23	N/A	18	0	5	7	2	25+TT	-2-TT
43-51	23	N/A	11	0	12	6	2	25+TT	6-TT
	23	N/A	5	0	18	4	2	25+TT	14-TT
	23	N/A	4	0	19	3.5	2	25+TT	15.5-TT
52-60	23	N/A	18	0	5	7	2	25+TT	-2-TT
	23	N/A	18	0	5	7	2	25+TT	-2-TT
	23	N/A	10	0	13	5	2	25+TT	8-TT
61-63	23	N/A	18	0	5	7	2	25+TT	-2-TT
64-72	23	N/A	18	0	5	7	2	25+TT	-2-TT
	23	N/A	18	0	5	7	2	25+TT	-2-TT
	23	N/A	10	0	13	5	2	25+TT	8-TT
73-75	23	N/A	18	0	5	7	2	25+TT	-2-TT
76-84	23	N/A	18	0	5	7	2	25+TT	-2-TT
	23	N/A	18	0	5	7	2	25+TT	-2-TT
	23	N/A	10	0	13	5	2	25+TT	8-TT
85-87	23	N/A	18	0	5	7	2	25+TT	-2-TT
88	23	N/A	3.5	0	19.5	3.5	2	25+TT	16-TT
89	23	N/A	8.5	0	14.5	5	2	25+TT	9.5-TT
90-92	23	N/A	11	0	12	6	2	25+TT	6-TT
	23	N/A	5	0	18	4	2	25+TT	14-TT
	23	N/A	4	0	19	3.5	2	25+TT	16-TT
93	23	N/A	8.5	0	14.5	5	2	25+TT	9.5-TT
94	23	N/A	8.5	0	14.5	5	2	25+TT	9.5-TT
95-97	23	N/A	11	0	12	6	2	25+TT	6-TT
	23	N/A	5	0	18	4	2	25+TT	14-TT
	23	N/A	4	0	19	3.5	2	25+TT	15.5-TT
98-100	23	N/A	19	0	4	7	2	25+TT	-3-TT
	23	N/A	19	0	4	7	2	25+TT	-3-TT
	23	N/A	10	0	13	5	2	25+TT	8-TT
101-102	23	N/A	19	0	4	7	2	25+TT	-3-TT
	23	N/A	19	0	4	7	2	25+TT	-3-TT

Test ID	$P_{PowerClass}$ (dBm)	MPR (dB)	A-MPR (dB)	$\Delta T_{C,c}$ (dB)	$P_{CMAX\_L,c}$ (dBm)	$T(P_{CMAX\_L,c})$ (dB)	$T_{L,c}$ (dB)	Upper limit (dBm)	Lower limit (dBm)
103-105	23	N/A	11	0	12	6	2	25+TT	6-TT
	23	N/A	5	0	18	4	2	25+TT	14-TT
	23	N/A	4	0	19	3.5	2	25+TT	15.5-TT
106-108	23	N/A	19	0	4	7	2	25+TT	-3-TT
	23	N/A	19	0	4	7	2	25+TT	-3-TT
	23	N/A	10	0	13	5	2	25+TT	8-TT
109	23	N/A	19	0	4	7	2	25+TT	-3-TT
110-112	23	N/A	19	0	4	7	2	25+TT	-3-TT
	23	N/A	19	0	4	7	2	25+TT	-3-TT
	23	N/A	10	0	13	5	2	25+TT	8-TT
113	23	N/A	19	0	4	7	2	25+TT	-3-TT
114-116	23	N/A	19	0	4	7	2	25+TT	-3-TT
	23	N/A	19	0	4	7	2	25+TT	-3-TT
	23	N/A	10	0	13	5	2	25+TT	8-TT
117	23	N/A	19	0	4	7	2	25+TT	-3-TT
118	23	4.5		0	18.5	4	2	25+TT	14.5-TT
119	23	N/A	8.5	0	14.5	5	2	25+TT	9.5-TT
120-122	23	N/A	11	0	12	6	2	25+TT	6-TT
	23	N/A	5	0	18	4	2	25+TT	14-TT
	23	4.5		0	18.5	4	2	25+TT	14.5-TT
123	23	N/A	8.5	0	14.5	5	2	25+TT	9.5-TT
124	23	N/A	8.5	0	14.5	5	2	25+TT	9.5-TT
125-127	23	N/A	11	0	12	6	2	25+TT	6-TT
	23	N/A	5	0	18	4	2	25+TT	14-TT
	23	4.5		0	18.5	4	2	25+TT	14.5-TT
128-130	23	N/A	19	0	4	7	2	25+TT	-3-TT
	23	N/A	19	0	4	7	2	25+TT	-3-TT
	23	N/A	10	0	13	5	2	25+TT	8-TT
131-132	23	N/A	19	0	4	7	2	25+TT	-3-TT
	23	N/A	19	0	4	7	2	25+TT	-3-TT
133-135	23	N/A	11	0	12	6	2	25+TT	6-TT
	23	N/A	5	0	18	4	2	25+TT	14-TT
	23	4.5		0	18.5	4	2	25+TT	14.5-TT
136-138	23	N/A	19	0	4	7	2	25+TT	-3-TT
	23	N/A	19	0	4	7	2	25+TT	-3-TT
	23	N/A	10	0	13	5	2	25+TT	8-TT
139	23	N/A	19	0	4	7	2	25+TT	-3-TT
140-142	23	N/A	19	0	4	7	2	25+TT	-3-TT
	23	N/A	19	0	4	7	2	25+TT	-3-TT
	23	N/A	10	0	13	5	2	25+TT	8-TT
143	23	N/A	19	0	4	7	2	25+TT	-3-TT
144-146	23	N/A	19	0	4	7	2	25+TT	-3-TT
	23	N/A	19	0	4	7	2	25+TT	-3-TT
	23	N/A	10	0	13	5	2	25+TT	8-TT
147	23	N/A	19	0	4	7	2	25+TT	-3-TT

Test ID	$P_{PowerClass}$ (dBm)	MPR (dB)	A-MPR (dB)	$\Delta T_{C,c}$ (dB)	$P_{CMAX\_L,c}$ (dBm)	$T(P_{CMAX\_L,c})$ (dB)	$T_{L,c}$ (dB)	Upper limit (dBm)	Lower limit (dBm)
148-150	23	N/A	5.5	0	17.5	5	2	25+TT	12.5-TT
151-153	23	N/A	8.5	0	14.5	5	2	25+TT	9.5-TT
154-162	23	N/A	13	0	10	6	2	25+TT	4-TT
	23	N/A	6.5	0	16.5	5	2	25+TT	11.5-TT
	23	N/A	4	0	19	3.5	2	25+TT	16-TT
163-165	23	N/A	8.5	0	14.5	5	2	25+TT	9.5-TT
166-168	23	N/A	8.5	0	14.5	5	2	25+TT	9.5-TT
169-177	23	N/A	13	0	10	6	2	25+TT	4-TT
	23	N/A	6.5	0	16.5	5	2	25+TT	11.5-TT
	23	N/A	4	0	19	3.5	2	25+TT	15.5-TT
178-186	23	N/A	19	0	4	7	2	25+TT	-3-TT
	23	N/A	19	0	4	7	2	25+TT	-3-TT
	23	N/A	12	0	11	6	2	25+TT	5-TT
187-189	23	N/A	19	0	4	7	2	25+TT	-3-TT
190-198	23	N/A	13	0	10	6	2	25+TT	4-TT
	23	N/A	6.5	0	16.5	5	2	25+TT	11.5-TT
	23	N/A	4	0	19	3.5	2	25+TT	15.5-TT
199-207	23	N/A	19	0	4	7	2	25+TT	-3-TT
	23	N/A	19	0	4	7	2	25+TT	-3-TT
	23	N/A	12	0	11	6	2	25+TT	5-TT
208-210	23	N/A	19	0	4	7	2	25+TT	-3-TT
211-219	23	N/A	19	0	4	7	2	25+TT	-3-TT
	23	N/A	19	0	4	7	2	25+TT	-3-TT
	23	N/A	12	0	11	6	2	25+TT	5-TT
220-222	23	N/A	19	0	4	7	2	25+TT	-3-TT
223-231	23	N/A	19	0	4	7	2	25+TT	-3-TT
	23	N/A	19	0	4	7	2	25+TT	-3-TT
	23	N/A	12	0	11	6	2	25+TT	5-TT
232-234	23	N/A	19	0	4	7	2	25+TT	-3-TT
235	23	6.5		0	16.5	5	2	25+TT	11.5-TT
236	23	N/A	8.5	0	14.5	5	2	25+TT	9.5-TT
237-239	23	N/A	13	0	10	6	2	25+TT	4-TT
	23	N/A	6.5	0	16.5	5	2	25+TT	11.5-TT
	23	6.5		0	16.5	5	2	25+TT	11.5-TT
240	23	N/A	8.5	0	14.5	5	2	25+TT	9.5-TT
241	23	N/A	8.5	0	14.5	5	2	25+TT	9.5-TT
242-244	23	N/A	13	0	10	6	2	25+TT	4-TT
	23	N/A	6.5	0	16.5	5	2	25+TT	11.5-TT
	23	6.5		0	16.5	5	2	25+TT	11.5-TT
245-247	23	N/A	19	0	4	7	2	25+TT	-3-TT
	23	N/A	19	0	4	7	2	25+TT	-3-TT
	23	N/A	12	0	11	6	2	25+TT	5-TT
248-249	23	N/A	19	0	4	7	2	25+TT	-3-TT
	23	N/A	19	0	4	7	2	25+TT	-3-TT

Test ID	$P_{PowerClass}$ (dBm)	MPR (dB)	A-MPR (dB)	$\Delta T_{C,c}$ (dB)	$P_{CMAX\_L,c}$ (dBm)	$T(P_{CMAX\_L,c})$ (dB)	$T_{L,c}$ (dB)	Upper limit (dBm)	Lower limit (dBm)
250-252	23	N/A	13	0	10	6	2	25+TT	4-TT
	23	N/A	6.5	0	16.5	5	2	25+TT	11.5-TT
	23	6.5		0	16.5	5	2	25+TT	11.5-TT
253-255	23	N/A	19	0	4	7	2	25+TT	-3-TT
	23	N/A	19	0	4	7	2	25+TT	-3-TT
	23	N/A	12	0	11	6	2	25+TT	5-TT
256	23	N/A	19	0	4	7	2	25+TT	-3-TT
257-259	23	N/A	19	0	4	7	2	25+TT	-3-TT
	23	N/A	19	0	4	7	2	25+TT	-3-TT
	23	N/A	12	0	11	6	2	25+TT	5-TT
260	23	N/A	19	0	4	7	2	25+TT	-3-TT
261-263	23	N/A	19	0	4	7	2	25+TT	-3-TT
	23	N/A	19	0	4	7	2	25+TT	-3-TT
	23	N/A	12	0	11	6	2	25+TT	5-TT
264	23	N/A	19	0	4	7	2	25+TT	-3-TT
265	23	1		0	22	2	2	25+TT	20-TT
266	23	2		0	21	2	2	25+TT	19-TT
267	23	1		0	22	2	2	25+TT	20-TT

NOTE 1: $P_{PowerClass}$ is the maximum UE power specified without taking into account the tolerance.
NOTE 2: TT for each frequency and channel bandwidth is specified in Table 6.2I.3.5-0.

Table 6.2I.3.5-16: UE Power Class 3 test requirements (NS_27)

Test ID	$P_{PowerClass}$ (dBm)	$\Delta P_{PowerClass}$ (dB)	MPR (dB)	A-MPR (dB)	$\Delta T_{C,c}$ (dB)	$P_{CMAX\_L,c}$ (dBm)	$T(P_{CMAX\_L,C})$ (dB)	$T_{L,c}$ (dB)	Upper limit (dBm)	Lower limit (dBm)
1	23	0	0.5	4	0	19	3.5	3	25+TT	15.5-TT
2	23	0	0.5	4	0	19	3.5	3	25+TT	15.5-TT
3	23	0	0.5	4	0	19	3.5	3	25+TT	15.5-TT
4	23	0	0.5	4	0	19	3.5	3	25+TT	15.5-TT
5	23	0	0.5	4	0	19	3.5	3	25+TT	15.5-TT
6	23	0	0.5	2	0	21	2.0	3	25+TT	18-TT
7	23	0	0.5	4	0	19	3.5	3	25+TT	15.5-TT
8	23	0	0.5	2	0	21	2.0	3	25+TT	18-TT
9	23	0	0.5	4	0	19	3.5	3	25+TT	15.5-TT
10	23	0	0.5	4	0	19	3.5	3	25+TT	15.5-TT
11	23	0	0.5	4	0	19	3.5	3	25+TT	15.5-TT
12	23	0	0.5	4	0	19	3.5	3	25+TT	15.5-TT
13	23	0	0.5	4	0	19	3.5	3	25+TT	15.5-TT
14	23	0	0.5	2	0	21	2.0	3	25+TT	18-TT
15	23	0	0.5	4	0	19	3.5	3	25+TT	15.5-TT
16	23	0	0.5	2	0	21	2.0	3	25+TT	18-TT
29	23	0	1	4	0	19	3.5	3	25+TT	15.5-TT
30	23	0	1	4	0	19	3.5	3	25+TT	15.5-TT
31	23	0	1	4	0	19	3.5	3	25+TT	15.5-TT
32	23	0	1	4	0	19	3.5	3	25+TT	15.5-TT
33	23	0	1	4	0	19	3.5	3	25+TT	15.5-TT
34	23	0	1	2	0	21	2.0	3	25+TT	18-TT
35	23	0	1	4	0	19	3.5	3	25+TT	15.5-TT
36	23	0	1	2	0	21	2.0	3	25+TT	18-TT
37	23	0	1	4	0	19	3.5	3	25+TT	15.5-TT
38	23	0	1	4	0	19	3.5	3	25+TT	15.5-TT
39	23	0	1	4	0	19	3.5	3	25+TT	15.5-TT
40	23	0	1	4	0	19	3.5	3	25+TT	15.5-TT
41	23	0	1	4	0	19	3.5	3	25+TT	15.5-TT
42	23	0	1	2	0	21	2.0	3	25+TT	18-TT
43	23	0	1	4	0	19	3.5	3	25+TT	15.5-TT
44	23	0	1	2	0	21	2.0	3	25+TT	18-TT
57	23	0	2	5	0	18	4.0	3	25+TT	14-TT
58	23	0	2	5	0	18	4.0	3	25+TT	14-TT
59	23	0	2	5	0	18	4.0	3	25+TT	14-TT

Test ID	$P_{PowerClass}$ (dBm)	$\Delta P_{PowerClass}$ (dB)	MPR (dB)	A-MPR (dB)	$\Delta T_{C,c}$ (dB)	$P_{CMAX\_L,c}$ (dBm)	$T(P_{CMAX\_L,C})$ (dB)	$T_{L,c}$ (dB)	Upper limit (dBm)	Lower limit (dBm)
60	23	0	2	5	0	18	4.0	3	25+TT	14-TT
61	23	0	2	4	0	19	3.5	3	25+TT	15.5-TT
62	23	0	2	2	0	21	2.0	3	25+TT	18-TT
63	23	0	2	4	0	19	3.5	3	25+TT	15.5-TT
64	23	0	2	2	0	21	2.0	3	25+TT	18-TT
65	23	0	2	5	0	18	4.0	3	25+TT	14-TT
66	23	0	2	5	0	18	4.0	3	25+TT	14-TT
67	23	0	2	5	0	18	4.0	3	25+TT	14-TT
68	23	0	2	5	0	18	4.0	3	25+TT	14-TT
69	23	0	2	4	0	19	3.5	3	25+TT	15.5-TT
70	23	0	2	2	0	21	2.0	3	25+TT	18-TT
71	23	0	2	4	0	19	3.5	3	25+TT	15.5-TT
72	23	0	2	2	0	21	2.0	3	25+TT	18-TT
85	23	0	2.5	5	0	18	4.0	3	25+TT	14-TT
86	23	0	2.5	5	0	18	4.0	3	25+TT	14-TT
87	23	0	2.5	5	0	18	4.0	3	25+TT	14-TT
88	23	0	2.5	5	0	18	4.0	3	25+TT	14-TT
89	23	0	2.5	4	0	19	3.5	3	25+TT	15.5-TT
90	23	0	2.5	2	0	20.5	2.5	3	25+TT	17.5-TT
91	23	0	2.5	4	0	19	3.5	3	25+TT	15.5-TT
92	23	0	2.5	2	0	20.5	2.5	3	25+TT	17.5-TT
93	23	0	2.5	5	0	18	4.0	3	25+TT	14-TT
94	23	0	2.5	5	0	18	4.0	3	25+TT	14-TT
95	23	0	2.5	5	0	18	4.0	3	25+TT	14-TT
96	23	0	2.5	5	0	18	4.0	3	25+TT	14-TT
97	23	0	2.5	4	0	19	3.5	3	25+TT	15.5-TT
98	23	0	2.5	2	0	20.5	2.5	3	25+TT	17.5-TT
99	23	0	2.5	4	0	19	3.5	3	25+TT	15.5-TT
100	23	0	2.5	2	0	20.5	2.5	3	25+TT	17.5-TT
113	23	0	4.5	0	0	18.5	4.0	3	25+TT	14.5-TT
114	23	0	4.5	0	0	18.5	4.0	3	25+TT	14.5-TT
115	23	0	4.5	0	0	18.5	4.0	3	25+TT	14.5-TT
116	23	0	4.5	0	0	18.5	4.0	3	25+TT	14.5-TT
117	23	0	4.5	0	0	18.5	4.0	3	25+TT	14.5-TT
118	23	0	4.5	2	0	18.5	4.0	3	25+TT	14.5-TT
119	23	0	4.5	0	0	18.5	4.0	3	25+TT	14.5-TT

Test ID	$P_{PowerClass}$ (dBm)	$\Delta P_{PowerClass}$ (dB)	MPR (dB)	A-MPR (dB)	$\Delta T_{C,c}$ (dB)	$P_{CMAX\_L,c}$ (dBm)	$T(P_{CMAX\_L,C})$ (dB)	$T_{L,c}$ (dB)	Upper limit (dBm)	Lower limit (dBm)
120	23	0	4.5	2	0	18.5	4.0	3	25+TT	14.5-TT
121	23	0	4.5	0	0	18.5	4.0	3	25+TT	14.5-TT
122	23	0	4.5	0	0	18.5	4.0	3	25+TT	14.5-TT
123	23	0	4.5	0	0	18.5	4.0	3	25+TT	14.5-TT
124	23	0	4.5	0	0	18.5	4.0	3	25+TT	14.5-TT
125	23	0	4.5	0	0	18.5	4.0	3	25+TT	14.5-TT
126	23	0	4.5	2	0	18.5	4.0	3	25+TT	14.5-TT
127	23	0	4.5	0	0	18.5	4.0	3	25+TT	14.5-TT
128	23	0	4.5	2	0	18.5	4.0	3	25+TT	14.5-TT
141	23	0	3	6	0	17	5.0	3	25+TT	12-TT
142	23	0	3	6	0	17	5.0	3	25+TT	12-TT
143	23	0	3	6	0	17	5.0	3	25+TT	12-TT
144	23	0	3	6	0	17	5.0	3	25+TT	12-TT
145	23	0	3	4	0	19	3.5	3	25+TT	15.5-TT
146	23	0	3	2	0	20	2.5	3	25+TT	17-TT
147	23	0	3	4	0	19	3.5	3	25+TT	15.5-TT
148	23	0	3	2	0	20	2.5	3	25+TT	17-TT
149	23	0	3	6	0	17	5.0	3	25+TT	12-TT
150	23	0	3	6	0	17	5.0	3	25+TT	12-TT
151	23	0	3	6	0	17	5.0	3	25+TT	12-TT
152	23	0	3	6	0	17	5.0	3	25+TT	12-TT
153	23	0	3	4	0	19	3.5	3	25+TT	15.5-TT
154	23	0	3	2	0	20	2.5	3	25+TT	17-TT
155	23	0	3	4	0	19	3.5	3	25+TT	15.5-TT
156	23	0	3	2	0	20	2.5	3	25+TT	17-TT
169	23	0	3	6	0	17	5.0	3	25+TT	12-TT
170	23	0	3	6	0	17	5.0	3	25+TT	12-TT
171	23	0	3	6	0	17	5.0	3	25+TT	12-TT
172	23	0	3	6	0	17	5.0	3	25+TT	12-TT
173	23	0	3	4	0	19	3.5	3	25+TT	15.5-TT
174	23	0	3	2	0	20	2.5	3	25+TT	17-TT
175	23	0	3	4	0	19	3.5	3	25+TT	15.5-TT
176	23	0	3	2	0	20	2.5	3	25+TT	17-TT
177	23	0	3	6	0	17	5.0	3	25+TT	12-TT
178	23	0	3	6	0	17	5.0	3	25+TT	12-TT
179	23	0	3	6	0	17	5.0	3	25+TT	12-TT

Test ID	$P_{PowerClass}$ (dBm)	$\Delta P_{PowerClass}$ (dB)	MPR (dB)	A-MPR (dB)	$\Delta T_{C,c}$ (dB)	$P_{CMAX\_L,c}$ (dBm)	$T(P_{CMAX\_L,c})$ (dB)	$T_{L,c}$ (dB)	Upper limit (dBm)	Lower limit (dBm)
180	23	0	3	6	0	17	5.0	3	25+TT	12-TT
181	23	0	3	4	0	19	3.5	3	25+TT	15.5-TT
182	23	0	3	2	0	20	2.5	3	25+TT	17-TT
183	23	0	3	4	0	19	3.5	3	25+TT	15.5-TT
184	23	0	3	2	0	20	2.5	3	25+TT	17-TT
197	23	0	3.5	6	0	17	5.0	3	25+TT	12-TT
198	23	0	3.5	6	0	17	5.0	3	25+TT	12-TT
199	23	0	3.5	6	0	17	5.0	3	25+TT	12-TT
200	23	0	3.5	6	0	17	5.0	3	25+TT	12-TT
201	23	0	3.5	4	0	19	3.5	3	25+TT	15.5-TT
202	23	0	3.5	2	0	19.5	3.5	3	25+TT	16-TT
203	23	0	3.5	4	0	19	3.5	3	25+TT	15.5-TT
204	23	0	3.5	2	0	19.5	3.5	3	25+TT	16-TT
205	23	0	3.5	6	0	17	5.0	3	25+TT	12-TT
206	23	0	3.5	6	0	17	5.0	3	25+TT	12-TT
207	23	0	3.5	6	0	17	5.0	3	25+TT	12-TT
208	23	0	3.5	6	0	17	5.0	3	25+TT	12-TT
209	23	0	3.5	4	0	19	3.5	3	25+TT	15.5-TT
210	23	0	3.5	2	0	19.5	3.5	3	25+TT	16-TT
211	23	0	3.5	4	0	19	3.5	3	25+TT	15.5-TT
212	23	0	3.5	2	0	19.5	3.5	3	25+TT	16-TT
225	23	0	6.5	0	0	16.5	5.0	3	25+TT	11.5-TT
226	23	0	6.5	0	0	16.5	5.0	3	25+TT	11.5-TT
227	23	0	6.5	0	0	16.5	5.0	3	25+TT	11.5-TT
228	23	0	6.5	0	0	16.5	5.0	3	25+TT	11.5-TT
229	23	0	6.5	0	0	16.5	5.0	3	25+TT	11.5-TT
230	23	0	6.5	2	0	16.5	5.0	3	25+TT	11.5-TT
231	23	0	6.5	0	0	16.5	5.0	3	25+TT	11.5-TT
232	23	0	6.5	2	0	16.5	5.0	3	25+TT	11.5-TT
233	23	0	6.5	0	0	16.5	5.0	3	25+TT	11.5-TT
234	23	0	6.5	0	0	16.5	5.0	3	25+TT	11.5-TT
235	23	0	6.5	0	0	16.5	5.0	3	25+TT	11.5-TT
236	23	0	6.5	0	0	16.5	5.0	3	25+TT	11.5-TT
237	23	0	6.5	0	0	16.5	5.0	3	25+TT	11.5-TT
238	23	0	6.5	2	0	16.5	5.0	3	25+TT	11.5-TT
239	23	0	6.5	0	0	16.5	5.0	3	25+TT	11.5-TT
240	23	0	6.5	2	0	16.5	5.0	3	25+TT	11.5-TT

NOTE 1: $P_{PowerClass}$ is the maximum UE power specified without taking into account the tolerance.
NOTE 2: TT for each frequency and channel bandwidth is specified in Table 6.2I.3.5-0.

Table 6.2I.3.5-17: UE Power Class 3 test requirements (NS_40)

Test ID	$P_{PowerClass}$ (dBm)	$\Delta P_{PowerClass}$ (dB)	MPR (dB)	A-MPR (dB)	$\Delta T_{C,c}$ (dB)	$P_{CMAX\_L,c}$ (dBm)	$T(P_{CMAX\_L,C})$ (dB)	$T_{L,c}$ (dB)	Upper limit (dBm)	Lower limit (dBm)
1	23	0	1	15.5	0	7.5	7.0	2	25+TT	0.5-TT
2	23	0	0	12	0	11	6.0	2	25+TT	5-TT
3	23	0	1	15.5	0	7.5	7.0	2	25+TT	0.5-TT
4	23	0	2	14.5	0	8.5	6.0	2	25+TT	2.5-TT
5	23	0	1	11	0	12	6.0	2	25+TT	6-TT
6	23	0	2	14.5	0	8.5	6.0	2	25+TT	2.5-TT
7	23	0	2.5	14.5	0	8.5	6.0	2	25+TT	2.5-TT
8	23	0	2.5	10	0	13	5.0	2	25+TT	8-TT
9	23	0	2.5	14.5	0	8.5	6.0	2	25+TT	2.5-TT
10	23	0	4.5	12.5	0	10.5	6.0	2	25+TT	4.5-TT
11	23	0	4.5	7.5	0	15.5	5.0	2	25+TT	10.5-TT
12	23	0	4.5	12.5	0	10.5	6.0	2	25+TT	4.5-TT
13	23	0	3	14.5	0	8.5	6.0	2	25+TT	2.5-TT
14	23	0	1.5	10	0	13	5.0	2	25+TT	8-TT
15	23	0	3	14.5	0	8.5	6.0	2	25+TT	2.5-TT
16	23	0	3	14.5	0	8.5	6.0	2	25+TT	2.5-TT
17	23	0	2	10	0	13	5.0	2	25+TT	8-TT
18	23	0	3	14.5	0	8.5	6.0	2	25+TT	2.5-TT
19	23	0	3.5	14	0	9	6.0	2	25+TT	3-TT
20	23	0	3.5	8	0	15	5.0	2	25+TT	10-TT
21	23	0	3.5	14	0	9	6.0	2	25+TT	3-TT
22	23	0	6.5	11	0	12	6.0	2	25+TT	6-TT
23	23	0	6.5	5.5	0	16.5	5.0	2	25+TT	11.5-TT
24	23	0	6.5	11	0	12	6.0	2	25+TT	6-TT

NOTE 1: $P_{PowerClass}$ is the maximum UE power specified without taking into account the tolerance.
NOTE 2: TT for each frequency and channel bandwidth is specified in Table 6.2I.3.5-0.

Table 6.2I.3.5-18: UE Power Class 3 test requirements (NS_41)

Test ID	$P_{PowerClass}$ (dBm)	$\Delta P_{PowerClass}$ (dB)	MPR (dB)	A-MPR (dB)	$\Delta T_{C,c}$ (dB)	$P_{CMAX\_L,c}$ (dBm)	$T(P_{CMAX\_L,c})$ (dB)	$T_{L,c}$ (dB)	Upper limit (dBm)	Lower limit (dBm)
1	23	0	0.5	9	0	14	5.0	2	25+TT	9-TT
2	23	0	0.5	9	0	14	5.0	2	25+TT	9-TT
3	23	0	0.5	11	0	12	6.0	2	25+TT	6-TT
4	23	0	0.5	11	0	12	6	2	25+TT	6-TT
5	23	0	0.5	12	0	11	6.0	2	25+TT	5-TT
6	23	0	0.5	12	0	11	6.0	2	25+TT	5-TT
7	23	0	0.5	13.5	0	9.5	6.0	2	25+TT	3.5-TT
8	23	0	0.5	13.5	0	9.5	6.0	2	25+TT	3.5-TT
9	23	0	1	9	0	14	5.0	2	25+TT	9-TT
10	23	0	1	9	0	14	5.0	2	25+TT	9-TT
11	23	0	1	11	0	12	6.0	2	25+TT	6-TT
12	23	0	1	11	0	12	6.0	2	25+TT	6-TT
13	23	0	1	12	0	11	6.0	2	25+TT	5-TT
14	23	0	1	12	0	11	6.0	2	25+TT	5-TT
15	23	0	1	13.5	0	9.5	6.0	2	25+TT	3.5-TT
16	23	0	1	13.5	0	9.5	6.0	2	25+TT	3.5-TT
17	23	0	2	9	0	14	5.0	2	25+TT	9-TT
18	23	0	2	9	0	14	5.0	2	25+TT	9-TT
19	23	0	2	11	0	12	6.0	2	25+TT	6-TT
20	23	0	2	11	0	12	6.0	2	25+TT	6-TT
21	23	0	2	12	0	11	6.0	2	25+TT	5-TT
22	23	0	2	12	0	11	6.0	2	25+TT	5-TT
23	23	0	2	13.5	0	9.5	6.0	2	25+TT	3.5-TT
24	23	0	2	13.5	0	9.5	6.0	2	25+TT	3.5-TT
25	23	0	2.5	9	0	14	5.0	2	25+TT	9-TT
26	23	0	2.5	9	0	14	5.0	2	25+TT	9-TT
27	23	0	2.5	11	0	12	6.0	2	25+TT	6-TT
28	23	0	2.5	11	0	12	6.0	2	25+TT	6-TT
29	23	0	2.5	12	0	11	6.0	2	25+TT	5-TT
30	23	0	2.5	12	0	11	6.0	2	25+TT	5-TT
31	23	0	2.5	13.5	0	9.5	6.0	2	25+TT	3.5-TT
32	23	0	2.5	13.5	0	9.5	6.0	2	25+TT	3.5-TT
33	23	0	4.5	9	0	14	5.0	2	25+TT	9-TT
34	23	0	4.5	9	0	14	5.0	2	25+TT	9-TT
35	23	0	4.5	11	0	12	6.0	2	25+TT	6-TT
36	23	0	4.5	11	0	12	6.0	2	25+TT	6-TT
37	23	0	4.5	12	0	11	6.0	2	25+TT	5-TT
38	23	0	4.5	12	0	11	6.0	2	25+TT	5-TT
39	23	0	4.5	13.5	0	9.5	6.0	2	25+TT	3.5-TT
40	23	0	4.5	13.5	0	9.5	6.0	2	25+TT	3.5-TT
41	23	0	3	9	0	14	5.0	2	25+TT	9-TT
42	23	0	3	9	0	14	5.0	2	25+TT	9-TT
43	23	0	3	11	0	12	6.0	2	25+TT	6-TT
44	23	0	3	11	0	12	6.0	2	25+TT	6-TT
45	23	0	3	12	0	11	6.0	2	25+TT	5-TT
46	23	0	3	12	0	11	6.0	2	25+TT	5-TT
47	23	0	3	13.5	0	9.5	6.0	2	25+TT	3.5-TT
48	23	0	3	13.5	0	9.5	6.0	2	25+TT	3.5-TT
49	23	0	3	9	0	14	5.0	2	25+TT	9-TT
50	23	0	3	9	0	14	5.0	2	25+TT	9-TT
51	23	0	3	11	0	12	6.0	2	25+TT	6-TT
52	23	0	3	11	0	12	6.0	2	25+TT	6-TT
53	23	0	3	12	0	11	6.0	2	25+TT	5-TT
54	23	0	3	12	0	11	6.0	2	25+TT	5-TT
55	23	0	3	13.5	0	9.5	6.0	2	25+TT	3.5-TT
56	23	0	3	13.5	0	9.5	6.0	2	25+TT	3.5-TT
57	23	0	3.5	9	0	14	5.0	2	25+TT	9-TT
58	23	0	3.5	9	0	14	5.0	2	25+TT	9-TT
59	23	0	3.5	11	0	12	6.0	2	25+TT	6-TT

Test ID	$P_{PowerClass}$ (dBm)	$\Delta P_{PowerClass}$ (dB)	MPR (dB)	A-MPR (dB)	$\Delta T_{C,c}$ (dB)	$P_{CMAX\_L,c}$ (dBm)	$T(P_{CMAX\_L,c})$ (dB)	$T_{L,c}$ (dB)	Upper limit (dBm)	Lower limit (dBm)
60	23	0	3.5	11	0	12	6.0	2	25+TT	6-TT
61	23	0	3.5	12	0	11	6.0	2	25+TT	5-TT
62	23	0	3.5	12	0	11	6.0	2	25+TT	5-TT
63	23	0	3.5	13.5	0	9.5	6.0	2	25+TT	3.5-TT
64	23	0	3.5	13.5	0	9.5	6.0	2	25+TT	3.5-TT
65	23	0	6.5	9	0	14	5.0	2	25+TT	9-TT
66	23	0	6.5	9	0	14	5.0	2	25+TT	9-TT
67	23	0	6.5	11	0	12	6.0	2	25+TT	6-TT
68	23	0	6.5	11	0	12	6.0	2	25+TT	6-TT
69	23	0	6.5	12	0	11	6.0	2	25+TT	5-TT
70	23	0	6.5	12	0	11	6.0	2	25+TT	5-TT
71	23	0	6.5	13.5	0	9.5	6.0	2	25+TT	3.5-TT
72	23	0	6.5	13.5	0	9.5	6.0	2	25+TT	3.5-TT

NOTE 1: $P_{PowerClass}$ is the maximum UE power specified without taking into account the tolerance.
NOTE 2: TT for each frequency and channel bandwidth is specified in Table 6.2I.3.5-0.

Table 6.2I.3.5-19: UE Power Class 3 test requirements (NS_42)

Test ID	$P_{PowerClass}$ (dBm)	$\Delta P_{PowerClass}$ (dB)	MPR (dB)	A-MPR (dB)	$\Delta T_{C,c}$ (dB)	$P_{CMAX\_L,c}$ (dBm)	$T(P_{CMAX\_L,c})$ (dB)	$T_{L,c}$ (dB)	Upper limit (dBm)	Lower limit (dBm)
1	23	0	0.5	7	0	16	5.0	2	25+TT	11-TT
2	23	0	0.5	4	0	19	3.5	2	25+TT	15.5-TT
3	23	0	0	1.5	0	21.5	2.0	2	25+TT	19.5-TT
4	23	0	0.5	8	0	15	5.0	2	25+TT	10-TT
5	23	0	0.5	5	0	18	4.0	2	25+TT	14-TT
6	23	0	0	1.5	0	21.5	2.0	2	25+TT	19.5-TT
7	23	0	1	7	0	16	5.0	2	25+TT	11-TT
8	23	0	1	4	0	19	3.5	2	25+TT	15.5-TT
9	23	0	0	1.5	0	21.5	2.0	2	25+TT	19.5-TT
10	23	0	1	8	0	15	5.0	2	25+TT	10-TT
11	23	0	1	5	0	18	4.0	2	25+TT	14-TT
12	23	0	0	1.5	0	21.5	2.0	2	25+TT	19.5-TT
13	23	0	2	7	0	16	5.0	2	25+TT	11-TT
14	23	0	2	4	0	19	3.5	2	25+TT	15.5-TT
15	23	0	1	1.5	0	21.5	2.0	2	25+TT	19.5-TT
16	23	0	2	8	0	15	5.0	2	25+TT	10-TT
17	23	0	2	5	0	18	4.0	2	25+TT	14-TT
18	23	0	1	1.5	0	21.5	2.0	2	25+TT	19.5-TT
19	23	0	2.5	7	0	16	5.0	2	25+TT	11-TT
20	23	0	2.5	4	0	19	3.5	2	25+TT	15.5-TT
21	23	0	2.5	1.5	0	20.5	2.5	2	25+TT	18-TT
22	23	0	2.5	8	0	15	5.0	2	25+TT	10-TT
23	23	0	2.5	5	0	18	4.0	2	25+TT	14-TT
24	23	0	2.5	1.5	0	20.5	2.5	2	25+TT	18-TT
25	23	0	4.5	7	0	16	5.0	2	25+TT	11-TT
26	23	0	4.5	4	0	18.5	4.0	2	25+TT	14.5-TT
27	23	0	4.5	1.5	0	18.5	4.0	2	25+TT	14.5-TT
28	23	0	4.5	8	0	15	5.0	2	25+TT	10-TT
29	23	0	4.5	5	0	18	4.0	2	25+TT	14-TT
30	23	0	4.5	1.5	0	18.5	4.0	2	25+TT	14.5-TT
31	23	0	3	7	0	16	5.0	2	25+TT	11-TT
32	23	0	3	4	0	19	3.5	2	25+TT	15.5-TT
33	23	0	1.5	1.5	0	21.5	2.0	2	25+TT	19.5-TT
34	23	0	3	8	0	15	5.0	2	25+TT	10-TT
35	23	0	3	5	0	18	4.0	2	25+TT	14-TT
36	23	0	1.5	1.5	0	21.5	2.0	2	25+TT	19.5-TT
37	23	0	3	7	0	16	5.0	2	25+TT	11-TT
38	23	0	3	4	0	19	3.5	2	25+TT	15.5-TT
39	23	0	2	1.5	0	21	2.0	2	25+TT	19-TT
40	23	0	3	8	0	15	5.0	2	25+TT	10-TT
41	23	0	3	5	0	18	4.0	2	25+TT	14-TT
42	23	0	2	1.5	0	21	2.0	2	25+TT	19-TT
43	23	0	3.5	7	0	16	5.0	2	25+TT	11-TT
44	23	0	3.5	4	0	19	3.5	2	25+TT	15.5-TT
45	23	0	3.5	1.5	0	19.5	3.5	2	25+TT	16-TT
46	23	0	3.5	8	0	15	5.0	2	25+TT	10-TT
47	23	0	3.5	5	0	18	4.0	2	25+TT	14-TT
48	23	0	3.5	1.5	0	19.5	3.5	2	25+TT	16-TT
49	23	0	6.5	7	0	16	5.0	2	25+TT	11-TT
50	23	0	6.5	4	0	16.5	5.0	2	25+TT	11.5-TT
51	23	0	6.5	1.5	0	16.5	5.0	2	25+TT	11.5-TT
52	23	0	6.5	8	0	15	5.0	2	25+TT	10-TT
53	23	0	6.5	5	0	16.5	5.0	2	25+TT	11.5-TT
54	23	0	6.5	1.5	0	16.5	5.0	2	25+TT	11.5-TT

NOTE 1: $P_{PowerClass}$ is the maximum UE power specified without taking into account the tolerance.
NOTE 2: TT for each frequency and channel bandwidth is specified in Table 6.2I.3.5-0.

Table 6.2I.3.5-20: UE Power Class 3 test requirements (NS_12) for n26

Test ID	$P_{PowerClass}$ (dBm)	MPR (dB)	A-MPR (dB)	$\Delta T_{C,c}$ (dB)	$P_{CMAX\_L,c}$ (dBm)	$T(P_{CMAX\_L,c})$ (dB)	$T_{L,c}$ (dB)	Upper limit (dBm)	Lower limit (dBm)
1-3	23	N/A	5	1.5	16.5	5	2	25+TT	11.5-TT
	23	N/A	5.5	1.5	16	5	2	25+TT	11-TT
	23	N/A	9.5	1.5	12	6	2	25+TT	6-TT
4-6	23	N/A	5	0	18	4	2	25+TT	14-TT
	23	N/A	5.5	0	17.5	5	2	25+TT	12.5-TT
	23	N/A	9.5	0	13.5	5	2	25+TT	8.5-TT
7-9	23	N/A	5	1.5	16.5	5	2	25+TT	11.5-TT
	23	N/A	5.5	1.5	16	5	2	25+TT	11-TT
	23	N/A	9.5	1.5	12	6	2	25+TT	6-TT
10-12	23	N/A	5	0	18	4	2	25+TT	14-TT
	23	N/A	5.5	0	17.5	5	2	25+TT	12.5-TT
	23	N/A	9.5	0	13.5	5	2	25+TT	8.5-TT
13	23	0	N/A	0	23	2	2	25+TT	21-TT
14	23	0	N/A	0	23	2	2	25+TT	21-TT
15-16	23	N/A	7	1.5	14.5	5	2	25+TT	9.5-TT
	23	N/A	9.5	1.5	12	6	2	25+TT	6-TT
17-18	23	N/A	7	0	16	5	2	25+TT	11-TT
	23	N/A	9.5	0	13.5	5	2	25+TT	8.5-TT
19-20	23	N/A	7	1.5	14.5	5	2	25+TT	9.5-TT
	23	N/A	9.5	1.5	12	6	2	25+TT	6-TT
21-22	23	N/A	7	0	16	5	2	25+TT	11-TT
	23	N/A	9.5	0	13.5	5	2	25+TT	8.5-TT
23	23	1.5	0	0	21.5	2	2	25+TT	19.5-TT
24	23	1.5	0	0	21.5	2	2	25+TT	19.5-TT

NOTE 1: $P_{PowerClass}$ is the maximum UE power specified without taking into account the tolerance.
NOTE 2: TT for each frequency and channel bandwidth is specified in Table 6.2I.3.5-0.

Table 6.2I.3.5-21: UE Power Class 3 test requirements (NS_13) for n26

Test ID	$P_{PowerClass}$ (dBm)	MPR (dB)	A-MPR (dB)	$\Delta T_{C,c}$ (dB)	$P_{CMAX\_L,c}$ (dBm)	$T(P_{CMAX\_L,c})$ (dB)	$T_{L,c}$ (dB)	Upper limit (dBm)	Lower limit (dBm)
1-3	23	N/A	3.5	1.5	18	4	2	25+TT	14-TT
	23	N/A	4.5	1.5	17	5	2	25+TT	12-TT
	23	N/A	8	1.5	13.5	5	2	25+TT	8.5-TT
4-6	23	N/A	4.5	0	18.5	4	2	25+TT	14.5-TT
	23	N/A	5	0	18	4	2	25+TT	14-TT
	23	N/A	6	0	17	5	2	25+TT	12-TT
7-9	23	N/A	3.5	0	19.5	3.5	2	25+TT	16-TT
	23	N/A	4.5	0	18.5	4	2	25+TT	14.5-TT
	23	N/A	8	0	15	5	2	25+TT	10-TT
10	23	N/A	3	0	20	2.5	2	25+TT	17.5-TT
11	23	1	N/A	0	22	2	2	25+TT	20-TT
12-14	23	N/A	5	1.5	16.5	5	2	25+TT	11.5-TT
	23	N/A	6	1.5	15.5	5	2	25+TT	10.5-TT
	23	N/A	8	1.5	13.5	5	2	25+TT	8.5-TT
15-16	23	N/A	6.5	0	16.5	5	2	25+TT	11.5-TT
	23	N/A	8	0	15	5	2	25+TT	10-TT
17-19	23	N/A	5	0	18	4	2	25+TT	14-TT
	23	N/A	6	0	17	5	2	25+TT	12-TT
	23	N/A	8	0	15	5	2	25+TT	10-TT
20	23	N/A	4.5	0	18.5	4	2	25+TT	14.5-TT
21	23	3	N/A	0	20	2.5	2	25+TT	17.5-TT

NOTE 1: $P_{PowerClass}$ is the maximum UE power specified without taking into account the tolerance.
NOTE 2: TT for each frequency and channel bandwidth is specified in Table 6.2I.3.5-0.

Table 6.2I.3.5-22: UE Power Class 3 test requirements (NS_14) for n26 low range

Test ID	$P_{PowerClass}$ (dBm)	MPR (dB)	A-MPR (dB)	$\Delta T_{C,c}$ (dB)	$P_{CMAX\_L,c}$ (dBm)	$T(P_{CMAX\_L,c})$ (dB)	$T_{L,c}$ (dB)	Upper limit (dBm)	Lower limit (dBm)
1	23	N/A	3	1.5	18.5	4	2	25+TT	14.5-TT
2	23	N/A	2	0	21	2	2	25+TT	19-TT
3	23	N/A	3	1.5	18.5	4	2	25+TT	14.5-TT
4	23	N/A	2	0	21	2	2	25+TT	19-TT
5-6	23	N/A	3	1.5	18.5	4	2	25+TT	14.5-TT
	23	N/A	8	1.5	13.5	5	2	25+TT	8.5-TT
7	23	N/A	2	0	21	2	2	25+TT	19-TT
8	23	0	N/A	1.5	21.5	2	2	25+TT	19.5-TT
9	23	0	N/A	1.5	21.5	2	2	25+TT	19.5-TT
10	23	0	N/A	1.5	21.5	2	2	25+TT	19.5-TT
11-13	23	N/A	5	1.5	16.5	5	2	25+TT	11.5-TT
	23	N/A	6	1.5	15.5	5	2	25+TT	10.5-TT
	23	N/A	8	1.5	13.5	5	2	25+TT	8.5-TT
14	23	N/A	4	0	19	3.5	2	25+TT	15.5-TT
15-17	23	N/A	5	1.5	16.5	5	2	25+TT	11.5-TT
	23	N/A	6	1.5	15.5	5	2	25+TT	10.5-TT
	23	N/A	7	1.5	14.5	5	2	25+TT	9.5-TT
18	23	N/A	4	0	19	3.5	2	25+TT	15.5-TT
19-21	23	N/A	5	1.5	16.5	5	2	25+TT	11.5-TT
	23	N/A	6	1.5	15.5	5	2	25+TT	10.5-TT
	23	N/A	8	1.5	13.5	5	2	25+TT	8.5-TT
22	23	N/A	4	0	19	3.5	2	25+TT	15.5-TT
23	23	1.5	N/A	1.5	20	2.5	2	25+TT	17.5-TT
24	23	1.5	N/A	1.5	20	2.5	2	25+TT	17.5-TT
25	23	1.5	N/A	1.5	20	2.5	2	25+TT	17.5-TT

NOTE 1: $P_{PowerClass}$ is the maximum UE power specified without taking into account the tolerance.
NOTE 2: TT for each frequency and channel bandwidth is specified in Table 6.2I.3.5-0.

Table 6.2I.3.5-23: UE Power Class 3 test requirements (NS_14) for n26 high range

Test ID	$P_{PowerClass}$ (dBm)	MPR (dB)	A-MPR (dB)	$\Delta T_{C,c}$ (dB)	$P_{CMAX\_L,c}$ (dBm)	$T(P_{CMAX\_L,c})$ (dB)	$T_{L,c}$ (dB)	Upper limit (dBm)	Lower limit (dBm)
1	23	N/A	3	0	20	2.5	2	25+TT	17.5-TT
2	23	N/A	2	0	21	2	2	25+TT	19-TT
3	23	N/A	3	0	20	2.5	2	25+TT	17.5-TT
4	23	N/A	2	0	21	2	2	25+TT	19-TT
5-6	23	N/A	3	0	20	2.5	2	25+TT	17.5-TT
	23	N/A	8	0	15	5	2	25+TT	10-TT
7	23	N/A	2	0	21	2	2	25+TT	19-TT
8	23	0	N/A	0	23	2	2	25+TT	21-TT
9	23	0	N/A	0	23	2	2	25+TT	21-TT
10	23	0	N/A	0	23	2	2	25+TT	21-TT
11-13	23	N/A	5	0	18	4	2	25+TT	14-TT
	23	N/A	6	0	17	5	2	25+TT	12-TT
	23	N/A	8	0	15	5	2	25+TT	10-TT
14	23	N/A	4	0	19	3.5	2	25+TT	15.5-TT
15-17	23	N/A	5	0	18	4	2	25+TT	14-TT
	23	N/A	6	0	17	5	2	25+TT	12-TT
	23	N/A	7	0	16	5	2	25+TT	11-TT
18	23	N/A	4	0	19	3.5	2	25+TT	15.5-TT
19-21	23	N/A	5	0	18	4	2	25+TT	14-TT
	23	N/A	6	0	17	5	2	25+TT	12-TT
	23	N/A	8	0	15	5	2	25+TT	10-TT
22	23	N/A	4	0	19	3.5	2	25+TT	15.5-TT
23	23	1.5	N/A	1.5	20	2.5	2	25+TT	17.5-TT
24	23	1.5	N/A	1.5	20	2.5	2	25+TT	17.5-TT
25	23	1.5	N/A	1.5	20	2.5	2	25+TT	17.5-TT

NOTE 1: $P_{PowerClass}$ is the maximum UE power specified without taking into account the tolerance.
NOTE 2: TT for each frequency and channel bandwidth is specified in Table 6.2I.3.5-0.

Table 6.2I.3.5-24: UE Power Class 3 test requirements (NS_15) for n26

Test ID	$P_{PowerClass}$ (dBm)	MPR (dB)	A-MPR (dB)	$\Delta T_{C,c}$ (dB)	$P_{CMAX\_L,c}$ (dBm)	$T(P_{CMAX\_L,c})$ (dB)	$T_{L,c}$ (dB)	Upper limit (dBm)	Lower limit (dBm)
1	23	N/A	9	0	12.5	6	2	25+TT	6.5-TT
2	23	N/A	9	0	14	5	2	25+TT	9-TT
3	23	N/A	5	0	18	4	2	25+TT	14-TT
4-5	23	N/A	4	0	19	3.5	2	25+TT	15.5-TT
	23	N/A	9	0	14	5	2	25+TT	9-TT
6-7	23	N/A	9	0	12.5	6	2	25+TT	6.5-TT
	23	N/A	13.5	0	8	6	2	25+TT	2-TT
8	23	N/A	9	0	14	5	2	25+TT	9-TT
9	23	N/A	5	0	18	4	2	25+TT	14-TT
10-11	23	N/A	4	0	19	3.5	2	25+TT	15.5-TT
	23	N/A	9	0	14	5	2	25+TT	9-TT
12-13	23	N/A	9	0	14	5	2	25+TT	9-TT
	23	N/A	9	0	14	5	2	25+TT	9-TT
14	23	N/A	9	0	14	5	2	25+TT	9-TT
15	23	N/A	5	0	18	4	2	25+TT	14-TT
16-17	23	N/A	4	0	19	3.5	2	25+TT	15.5-TT
	23	N/A	9	0	14	5	2	25+TT	9-TT
18-19	23	N/A	9	0	12.5	6	2	25+TT	6.5-TT
	23	N/A	13.5	0	8	6	2	25+TT	2-TT
20	23	N/A	9	0	14	5	2	25+TT	9-TT
21	23	N/A	5	0	18	4	2	25+TT	14-TT
22-23	23	N/A	4	0	19	3.5	2	25+TT	15.5-TT
	23	N/A	9	0	14	5	2	25+TT	9-TT
24-25	23	N/A	9	0	14	5	2	25+TT	9-TT
	23	N/A	13.5	0	9.5	6	2	25+TT	3.5-TT
26	23	N/A	9	0	14	5	2	25+TT	9-TT
27	23	N/A	5	0	18	4	2	25+TT	14-TT
28-29	23	N/A	4	0	19	3.5	2	25+TT	15.5-TT
	23	N/A	9	0	14	5	2	25+TT	9-TT
30-31	23	N/A	9	0	14	5	2	25+TT	9-TT
	23	N/A	9	0	14	5	2	25+TT	9-TT
32	23	N/A	9	0	14	5	2	25+TT	9-TT
33	23	N/A	5	0	18	4	2	25+TT	14-TT
34-35	23	N/A	4	0	19	3.5	2	25+TT	15.5-TT
	23	N/A	9	0	14	5	2	25+TT	9-TT
36-37	23	N/A	9	0	12.5	6	2	25+TT	6.5-TT
	23	N/A	13.5	0	8	6	2	25+TT	2-TT
38	23	N/A	9	0	14	5	2	25+TT	9-TT
39	23	N/A	5	0	18	4	2	25+TT	14-TT
40-41	23	N/A	4	0	19	3.5	2	25+TT	15.5-TT
	23	N/A	9	0	14	5	2	25+TT	9-TT
42-43	23	N/A	9	0	14	5	2	25+TT	9-TT
	23	N/A	13.5	0	9.5	6	2	25+TT	3.5-TT
44	23	N/A	9	0	14	5	2	25+TT	9-TT
45	23	N/A	5	0	18	4	2	25+TT	14-TT

Test ID	$P_{PowerClass}$ (dBm)	MPR (dB)	A-MPR (dB)	$\Delta T_{C,c}$ (dB)	$P_{CMAX\_L,c}$ (dBm)	$T(P_{CMAX\_L,c})$ (dB)	$T_{L,c}$ (dB)	Upper limit (dBm)	Lower limit (dBm)
46-47	23	N/A	4	0	19	3.5	2	25+TT	15.5-TT
	23	N/A	9	0	14	5	2	25+TT	9-TT
48	23	1	N/A	0	22	2	2	25+TT	20-TT
49	23	1	N/A	0	22	2	2	25+TT	20-TT
50	23	0	N/A	0	23	2	2	25+TT	21-TT
51	23	0	N/A	0	23	2	2	25+TT	21-TT
52	23	N/A	10.5	0	11	6	2	25+TT	5-TT
53	23	N/A	10.5	0	12.5	6	2	25+TT	6.5-TT
54	23	N/A	6.5	0	16.5	5	2	25+TT	11.5-TT
55-56	23	N/A	4	0	19	3.5	2	25+TT	15.5-TT
	23	N/A	9	0	14	5	2	25+TT	9-TT
57-58	23	N/A	10.5	0	11	6	2	25+TT	5-TT
	23	N/A	13.5	0	8	6	2	25+TT	2-TT
59	23	N/A	10.5	0	12.5	6	2	25+TT	6.5-TT
60	23	N/A	6.5	0	16.5	5	2	25+TT	11.5-TT
61-62	23	N/A	4	0	19	3.5	2	25+TT	15.5-TT
	23	N/A	9	0	14	5	2	25+TT	9-TT
63-64	23	N/A	10.5	0	12.5	6	2	25+TT	6.5-TT
	23	N/A	10.5	0	12.5	6	2	25+TT	6.5-TT
65	23	N/A	10.5	0	12.5	6	2	25+TT	6.5-TT
66	23	N/A	6.5	0	16.5	5	2	25+TT	11.5-TT
67-68	23	N/A	4	0	19	3.5	2	25+TT	15.5-TT
	23	N/A	9	0	14	5	2	25+TT	9-TT
69-70	23	N/A	10.5	0	11	6	2	25+TT	5-TT
	23	N/A	13.5	0	8	6	2	25+TT	2-TT
71	23	N/A	10.5	0	12.5	6	2	25+TT	6.5-TT
72	23	N/A	6.5	0	16.5	5	2	25+TT	11.5-TT
73-74	23	N/A	4	0	19	3.5	2	25+TT	15.5-TT
	23	N/A	9	0	14	5	2	25+TT	9-TT
75-76	23	N/A	10.5	0	12.5	6	2	25+TT	6.5-TT
	23	N/A	13.5	0	9.5	6	2	25+TT	3.5-TT
77	23	N/A	10.5	0	12.5	6	2	25+TT	6.5-TT
78	23	N/A	6.5	0	16.5	5	2	25+TT	11.5-TT
79-80	23	N/A	4	0	19	3.5	2	25+TT	15.5-TT
	23	N/A	9	0	14	5	2	25+TT	9-TT
81-82	23	N/A	10.5	0	12.5	6	2	25+TT	6.5-TT
	23	N/A	10.5	0	12.5	6	2	25+TT	6.5-TT
83	23	N/A	10.5	0	12.5	6	2	25+TT	6.5-TT
84	23	N/A	6.5	0	16.5	5	2	25+TT	11.5-TT
85-86	23	N/A	4	0	19	3.5	2	25+TT	15.5-TT
	23	N/A	9	0	14	5	2	25+TT	9-TT
87-88	23	N/A	10.5	0	11	6	2	25+TT	5-TT
	23	N/A	13.5	0	8	6	2	25+TT	2-TT
89	23	N/A	10.5	0	12.5	6	2	25+TT	6.5-TT

Test ID	$P_{PowerClass}$ (dBm)	MPR (dB)	A-MPR (dB)	$\Delta T_{C,c}$ (dB)	$P_{CMAX\_L,c}$ (dBm)	$T(P_{CMAX\_L,c})$ (dB)	$T_{L,c}$ (dB)	Upper limit (dBm)	Lower limit (dBm)
90	23	N/A	6.5	0	16.5	5	2	25+TT	11.5-TT
91-92	23	N/A	4	0	19	3.5	2	25+TT	15.5-TT
	23	N/A	9	0	14	5	2	25+TT	9-TT
93-94	23	N/A	10.5	0	12.5	6	2	25+TT	6.5-TT
	23	N/A	13.5	0	9.5	6	2	25+TT	3.5-TT
95	23	N/A	10.5	0	12.5	6	2	25+TT	6.5-TT
96	23	N/A	6.5	0	16.5	5	2	25+TT	11.5-TT
97-98	23	N/A	4	0	19	3.5	2	25+TT	15.5-TT
	23	N/A	9	0	14	5	2	25+TT	9-TT
99	23	3	N/A	0	20	2.5	2	25+TT	17.5-TT
100	23	3	N/A	0	20	2.5	2	25+TT	17.5-TT
101	23	1.5	N/A	0	21.5	2	2	25+TT	19.5-TT
102	23	1.5	N/A	0	21.5	2	2	25+TT	19.5-TT

NOTE 1: $P_{PowerClass}$ is the maximum UE power specified without taking into account the tolerance.
NOTE 2: TT for each frequency and channel bandwidth is specified in Table 6.2I.3.5-0.

Table 6.2I.3.5-25: UE Power Class 3 test requirements for NS_45 (contiguous allocation)

Test ID	$P_{PowerClass}$ (dBm)	MPR (dB)	A-MPR (dB)	$\Delta T_{C,c}$ (dB)	$P_{CMAX,c}$ (dBm)	$T(P_{CMAX\_L,c})$ (dB)	$T_{L,c}$ (dB)	Upper limit (dBm)	Lower limit (dBm)
1, 2	23	0.5	1.5	0	21.5	2	2	25+TT	19.5-TT
3	23	0.5	1.5	0	21.5	2	2	25+TT	19.5-TT
4, 5	23	1	2	0	21	2	2	25+TT	19-TT
6	23	1	2	0	21	2	2	25+TT	19-TT
7, 8	23	2	2.5	0	20.5	2.5	2	25+TT	18-TT
9	23	2	2.5	0	20.5	2.5	2	25+TT	18-TT
10, 11	23	2.5	3	0	20	2.5	2	25+TT	17.5-TT
12	23	2.5	3	0	20	2.5	2	25+TT	17.5-TT

NOTE 1: $P_{PowerClass}$ is the maximum UE power specified without taking into account the tolerance.
NOTE 2: TT for each frequency and channel bandwidth is specified in Table 6.2I.3.5-0.

Table 6.2I.3.5-26: UE Power Class 3 test requirements (NS_21)

Test ID	ChBw (MHz)	$P_{PowerClass}$ (dBm)	MPR (dB)	A-MPR (dB)	$\Delta T_{C,c}$ (dB)	$P_{CMAX\_L,c}$ (dBm)	$T(P_{CMAX\_L,c})$ (dB)	$T_{L,c}$ (dB)	Upper limit (dBm)	Lower limit (dBm)
1, 2	5	23	0.5	0	0	22.5	2	2	25+TT	20.5-TT
	10	23	0.5	6	0	17	5	2	25+TT	12-TT
3	5	23	0.5	0	0	22.5	2	2	25+TT	20.5-TT
	10	23	0.5	4	0	19	3.5	2	25+TT	15.5-TT
4, 5	10	23	3	3	0	20	2.5	2	25+TT	17.5-TT
6, 7	5	23	1	0	0	22	2	2	25+TT	20-TT
	10	23	1	6	0	17	5	2	25+TT	12-TT
8	5	23	1	0	0	22	2	2	25+TT	20-TT
	10	23	1	4	0	19	3.5	2	25+TT	15.5-TT
9, 10	10	23	1	3	0	20	2.5	2	25+TT	17.5-TT
11, 12	5	23	2	0	0	21	2	2	25+TT	19-TT
	10	23	2	6	0	17	5	2	25+TT	12-TT
13	5	23	2	0	0	21	2	2	25+TT	19-TT
	10	23	2	4	0	19	3.5	2	25+TT	15.5-TT
14, 15	10	23	2	3	0	20	2.5	2	25+TT	17.5-TT
16, 17	5	23	2.5	0	0	20.5	2.5	2	25+TT	18-TT
	10	23	2.5	6	0	17	5	2	25+TT	12-TT
18	5	23	2.5	0	0	20.5	2.5	2	25+TT	18-TT
	10	23	2.5	4	0	19	3.5	2	25+TT	15.5-TT
19, 20	10	23	2.5	3	0	20	2.5	2	25+TT	17.5-TT
21, 22	5	23	4.5	0	0	18.5	4.0	2	25+TT	14.5-TT
	10	23	4.5	6	0	17	5.0	2	25+TT	12-TT
23	5	23	4.5	0	0	18.5	4.0	2	25+TT	14.5-TT
	10	23	4.5	4	0	18.5	4.0	2	25+TT	14.5-TT
24, 25	10	23	4.5	3	0	18.5	4.0	2	25+TT	14.5-TT
26, 27	5	23	3	0	0	20	2.5	2	25+TT	17.5-TT
	10	23	3	6	0	17	5	2	25+TT	12-TT
28	5	23	3	0	0	20	2.5	2	25+TT	17.5-TT
	10	23	3	5.5	0	17.5	5	2	25+TT	12.5-TT
29, 30	10	23	3	4	0	19	3.5	2	25+TT	15.5-TT
31, 32	5	23	3	0	0	20	2.5	2	25+TT	17.5-TT
	10	23	3	6	0	17	5	2	25+TT	12-TT
33	5	23	3	0	0	20	2.5	2	25+TT	17.5-TT
	10	23	3	5.5	0	17.5	5	2	25+TT	12.5-TT
34, 35	10	23	3	4	0	19	3.5	2	25+TT	15.5-TT
36, 37	5	23	3.5	0	0	19.5	3.5	2	25+TT	16-TT
	10	23	3.5	6	0	17	5	2	25+TT	12-TT
38	5	23	3.5	0	0	19.5	3.5	2	25+TT	16-TT
	10	23	3.5	5.5	0	17.5	5	2	25+TT	12.5-TT
39, 40	10	23	3.5	4	0	19	3.5	2	25+TT	15.5-TT
41, 42	5	23	6.5	0	0	16.5	5	2	25+TT	11.5-TT
	10	23	6.5	6	0	16.5	5	2	25+TT	11.5-TT
43	5	23	6.5	0	0	16.5	5	2	25+TT	11.5-TT
44, 45	10	23	6.5	5.5	0	16.5	5	2	25+TT	11.5-TT
	10	23	6.5	4	0	16.5	5	2	25+TT	11.5-TT

NOTE 1: $P_{PowerClass}$ is the maximum UE power specified without taking into account the tolerance.
NOTE 2: TT for each frequency and channel bandwidth is specified in Table 6.2I.3.5-0.

Table 6.2I.3.5-27: UE Power Class 3 test requirements (NS_06) for band n12 and n14

Test ID	$P_{PowerClass}$ (dBm)	MPR (dB)	A-MPR (dB)	$\Delta T_{C,c}$ (dB)	$P_{CMAX,c}$ (dBm)	$T(P_{CMAX\_L,c})$ (dB)	$T_{L,c}$ (dB)	Upper limit (dBm)	Lower limit (dBm)
1	23	0.5	0	0	22.5	2	2.5	25+TT	20.5-TT
2	23	0.5	0	0	22.5	2	2.5	25+TT	20.5-TT
3	23	0.5	0	0	22.5	2	2.5	25+TT	20.5-TT
4	23	1	0	0	22	2	2.5	25+TT	20-TT
5	23	1	0	0	22	2	2.5	25+TT	20-TT
6	23	1	0	0	22	2	2.5	25+TT	20-TT
7	23	2	0	0	21	2	2.5	25+TT	19-TT
8	23	2	0	0	21	2	2.5	25+TT	19-TT
9	23	2	0	0	21	2	2.5	25+TT	19-TT
10	23	2.5	0	0	20.5	2.5	2.5	25+TT	18-TT
11	23	2.5	0	0	20.5	2.5	2.5	25+TT	18-TT
12	23	2.5	0	0	20.5	2.5	2.5	25+TT	18-TT
13	23	4.5	0	0	18.5	4	2.5	25+TT	14.5-TT
14	23	4.5	0	0	18.5	4	2.5	25+TT	14.5-TT
15	23	4.5	0	0	18.5	4	2.5	25+TT	14.5-TT
16	23	3	0	0	20	2.5	2.5	25+TT	17.5-TT
17	23	3	0	0	20	2.5	2.5	25+TT	17.5-TT
18	23	3	0	0	20	2.5	2.5	25+TT	17.5-TT
19	23	3	0	0	20	2.5	2.5	25+TT	17.5-TT
20	23	3	0	0	20	2.5	2.5	25+TT	17.5-TT
21	23	3	0	0	20	2.5	2.5	25+TT	17.5-TT
22	23	3.5	0	0	19.5	3.5	2.5	25+TT	16-TT
23	23	3.5	0	0	19.5	3.5	2.5	25+TT	16-TT
24	23	3.5	0	0	19.5	3.5	2.5	25+TT	16-TT
25	23	6.5	0	0	16.5	5	2.5	25+TT	11.5-TT
26	23	6.5	0	0	16.5	5	2.5	25+TT	11.5-TT
27	23	6.5	0	0	16.5	5	2.5	25+TT	11.5-TT

NOTE 1: $P_{PowerClass}$ is the maximum UE power specified without taking into account the tolerance.
NOTE 2: TT for each frequency and channel bandwidth is specified in Table 6.2I.3.5-0.

Table 6.2I.3.5-28: UE Power Class 3 test requirements (NS_56) for band n24

Test ID	$P_{PowerClass}$ (dBm)	MPR (dB)	A-MPR (dB)	$\Delta T_{C,c}$ (dB)	$P_{CMAX,c}$ (dBm)	$T(P_{CMAX\_L,c})$ (dB)	$T_{L,c}$ (dB)	Upper limit (dBm)	Lower limit (dBm)
1	23	0.5	14	0	9	6	3	25+TT	3-TT
2	23	0.5	8	0	15	5	3	25+TT	10-TT
3	23	0.5	6	0	17	5	3	25+TT	12-TT
4	23	0.5	4	0	19	3.5	3	25+TT	15.5-TT
5	23	0	4	0	19	3.5	3	25+TT	15.5-TT
6	23	1	14	0	9	6	3	25+TT	3-TT
7	23	1	8	0	15	5	3	25+TT	10-TT
8	23	1	6	0	17	5	3	25+TT	12-TT
9	23	1	4	0	19	3.5	3	25+TT	15.5-TT
10	23	0	4	0	19	3.5	3	25+TT	15.5-TT
11	23	2	14	0	9	6	3	25+TT	3-TT
12	23	2	8	0	15	5	3	25+TT	10-TT
13	23	2	6	0	17	5	3	25+TT	12-TT
14	23	2	4	0	19	3.5	3	25+TT	15.5-TT
15	23	1	4	0	19	3.5	3	25+TT	15.5-TT
16	23	2.5	14	0	9	6	3	25+TT	3-TT
17	23	2.5	8	0	15	5	3	25+TT	10-TT
18	23	2.5	6	0	17	5	3	25+TT	12-TT
19	23	2.5	4	0	19	3.5	3	25+TT	15.5-TT
20	23	2.5	4	0	19	3.5	3	25+TT	15.5-TT
21	23	4.5	14	0	9	6	3	25+TT	3-TT
22	23	4.5	8	0	15	5	3	25+TT	10-TT
23	23	4.5	6	0	17	5	3	25+TT	12-TT
24	23	4.5	4	0	18.5	3.5	3	25+TT	15-TT
25	23	4.5	4	0	18.5	3.5	3	25+TT	15-TT
26	23	0.5	12	0	11	6	3	25+TT	5-TT
27	23	0.5	8	0	15	5	3	25+TT	10-TT
28	23	0.5	8	0	15	5	3	25+TT	10-TT
29	23	0	6	0	17	5	3	25+TT	12-TT
30	23	0.5	6	0	17	5	3	25+TT	12-TT
31	23	0	4	0	19	3.5	3	25+TT	15.5-TT
32	23	0.5	2	0	21	2	3	25+TT	18-TT
33	23	0.5	5	0	18	4	3	25+TT	14-TT
34	23	0	5	0	18	4	3	25+TT	14-TT
35	23	0	5	0	18	4	3	25+TT	14-TT
36	23	0.5	3	0	20	2.5	3	25+TT	17-TT
37	23	1	12	0	11	6	3	25+TT	5-TT
38	23	1	8	0	15	5	3	25+TT	10-TT
39	23	1	8	0	15	5	3	25+TT	10-TT
40	23	0	6	0	17	5	3	25+TT	12-TT
41	23	1	6	0	17	5	3	25+TT	12-TT
42	23	0	4	0	19	3.5	3	25+TT	15.5-TT
43	23	1	2	0	21	2	3	25+TT	18-TT
44	23	1	5	0	18	4	3	25+TT	14-TT
45	23	0	5	0	18	4	3	25+TT	14-TT
46	23	0	5	0	18	4	3	25+TT	14-TT
47	23	1	3	0	20	2.5	3	25+TT	17-TT
48	23	2	12	0	11	6	3	25+TT	5-TT
49	23	2	8	0	15	5	3	25+TT	10-TT
50	23	2	8	0	15	5	3	25+TT	10-TT
51	23	1	6	0	17	5	3	25+TT	12-TT
52	23	2	6	0	17	5	3	25+TT	12-TT
53	23	1	4	0	19	3.5	3	25+TT	15.5-TT
54	23	2	2	0	21	2	3	25+TT	18-TT
55	23	2	5	0	18	4	3	25+TT	14-TT
56	23	1	5	0	18	4	3	25+TT	14-TT
57	23	1	5	0	18	4	3	25+TT	14-TT
58	23	2	3	0	20	2.5	3	25+TT	17-TT
59	23	2.5	12	0	11	6	3	25+TT	5-TT

Test ID	$P_{PowerClass}$ (dBm)	MPR (dB)	A-MPR (dB)	$\Delta T_{C,c}$ (dB)	$P_{CMAX,c}$ (dBm)	$T(P_{CMAX\_L,c})$ (dB)	$T_{L,c}$ (dB)	Upper limit (dBm)	Lower limit (dBm)
60	23	2.5	8	0	15	5	3	25+TT	10-TT
61	23	2.5	8	0	15	5	3	25+TT	10-TT
62	23	2.5	6	0	17	5	3	25+TT	12-TT
63	23	2.5	6	0	17	5	3	25+TT	12-TT
64	23	2.5	4	0	19	3.5	3	25+TT	15.5-TT
65	23	2.5	2	0	20.5	2.5	3	25+TT	17.5-TT
66	23	2.5	5	0	18	4	3	25+TT	14-TT
67	23	2.5	5	0	18	4	3	25+TT	14-TT
68	23	2.5	5	0	18	4	3	25+TT	14-TT
69	23	2.5	3	0	20	2.5	3	25+TT	17-TT
70	23	4.5	12	0	11	6	3	25+TT	5-TT
71	23	4.5	8	0	15	5	3	25+TT	10-TT
72	23	4.5	8	0	15	5	3	25+TT	10-TT
73	23	4.5	6	0	17	5	3	25+TT	12-TT
74	23	4.5	6	0	17	5	3	25+TT	12-TT
75	23	4.5	4	0	18.5	4	3	25+TT	14.5-TT
76	23	4.5	2	0	18.5	4	3	25+TT	14.5-TT
77	23	4.5	5	0	18	4	3	25+TT	14-TT
78	23	4.5	5	0	18	4	3	25+TT	14-TT
79	23	4.5	5	0	18	4	3	25+TT	14-TT
80	23	4.5	3	0	18.5	4	3	25+TT	14.5-TT
81	23	3	14	0	9	6	3	25+TT	3-TT
82	23	3	8	0	15	5	3	25+TT	10-TT
83	23	3	6	0	17	5	3	25+TT	12-TT
84	23	3	4	0	19	3.5	3	25+TT	15.5-TT
85	23	1.5	4	0	19	3.5	3	25+TT	15.5-TT
86	23	3	14	0	9	6	3	25+TT	3-TT
87	23	3	8	0	15	5	3	25+TT	10-TT
88	23	3	6	0	17	5	3	25+TT	12-TT
89	23	3	4	0	19	3.5	3	25+TT	15.5-TT
90	23	2	4	0	19	3.5	3	25+TT	15.5-TT
91	23	3.5	14	0	9	6	3	25+TT	3-TT
92	23	3.5	8	0	15	5	3	25+TT	10-TT
93	23	3.5	6	0	17	5	3	25+TT	12-TT
94	23	3.5	4	0	19	3.5	3	25+TT	15.5-TT
95	23	3.5	4	0	19	3.5	3	25+TT	15.5-TT
96	23	6.5	14	0	9	6	3	25+TT	3-TT
97	23	6.5	8	0	15	5	3	25+TT	10-TT
98	23	6.5	6	0	16.5	5	3	25+TT	11.5-TT
99	23	6.5	4	0	16.5	5	3	25+TT	11.5-TT
100	23	6.5	4	0	16.5	5	3	25+TT	11.5-TT
101	23	3	12	0	9	6	3	25+TT	5-TT
102	23	3	8	0	11	5	3	25+TT	10-TT
103	23	3	8	0	15	5	3	25+TT	10-TT
104	23	1.5	6	0	17	5	3	25+TT	12-TT
105	23	3	6	0	17	5	3	25+TT	12-TT
106	23	1.5	4	0	19	3.5	3	25+TT	15.5-TT
107	23	3	2	0	20	2.5	3	25+TT	17-TT
108	23	3	5	0	18	4	3	25+TT	14-TT
109	23	1.5	5	0	18	4	3	25+TT	14-TT
110	23	1.5	5	0	18	4	3	25+TT	14-TT
111	23	3	3	0	20	2.5	3	25+TT	17-TT
112	23	3	12	0	11	6	3	25+TT	5-TT
113	23	3	8	0	15	5	3	25+TT	10-TT
114	23	3	8	0	15	5	3	25+TT	10-TT
115	23	2	6	0	17	5	3	25+TT	12-TT
116	23	3	6	0	17	5	3	25+TT	12-TT
117	23	2	4	0	19	3.5	3	25+TT	15.5-TT
118	23	3	2	0	20	2.5	3	25+TT	17-TT
119	23	3	5	0	18	4	3	25+TT	14-TT

Test ID	$P_{PowerClass}$ (dBm)	MPR (dB)	A-MPR (dB)	$\Delta T_{C,c}$ (dB)	$P_{CMAX,c}$ (dBm)	$T(P_{CMAX\_L,c})$ (dB)	$T_{L,c}$ (dB)	Upper limit (dBm)	Lower limit (dBm)
120	23	2	5	0	18	4	3	25+TT	14-TT
121	23	2	5	0	18	4	3	25+TT	14-TT
122	23	3	3	0	20	2.5	3	25+TT	17-TT
123	23	3.5	12	0	11	6	3	25+TT	5-TT
124	23	3.5	8	0	15	5	3	25+TT	10-TT
125	23	3.5	8	0	15	5	3	25+TT	10-TT
126	23	3.5	6	0	17	5	3	25+TT	12-TT
127	23	3.5	6	0	17	5	3	25+TT	12-TT
128	23	3.5	4	0	19	3.5	3	25+TT	15.5-TT
129	23	3.5	2	0	19.5	3.5	3	25+TT	16-TT
130	23	3.5	5	0	18	3.5	3	25+TT	14.5-TT
131	23	3.5	5	0	18	3.5	3	25+TT	14.5-TT
132	23	3.5	5	0	18	3.5	3	25+TT	14.5-TT
133	23	3.5	3	0	19.5	3.5	3	25+TT	16-TT
134	23	6.5	12	0	11	6	3	25+TT	5-TT
135	23	6.5	8	0	15	5	3	25+TT	10-TT
136	23	6.5	8	0	15	5	3	25+TT	10-TT
137	23	6.5	6	0	16.5	5	3	25+TT	11.5-TT
138	23	6.5	6	0	16.5	5	3	25+TT	11.5-TT
139	23	6.5	4	0	16.5	5	3	25+TT	11.5-TT
140	23	6.5	2	0	16.5	5	3	25+TT	11.5-TT
141	23	6.5	5	0	16.5	5	3	25+TT	11.5-TT
142	23	6.5	5	0	16.5	5	3	25+TT	11.5-TT
143	23	6.5	5	0	16.5	5	3	25+TT	11.5-TT
144	23	6.5	3	0	16.5	5	3	25+TT	11.5-TT
NOTE 1: $P_{PowerClass}$ is the maximum UE power specified without taking into account the tolerance. NOTE 2: TT for each frequency and channel bandwidth is specified in Table 6.2I.3.5-0.									

For the UE which supports [SUL configuration], $\Delta T_{IB,c}$ as specified in [clause 6.2C.2 for SUL] applies. Unless otherwise stated, $\Delta T_{IB,c}$ is set to zero. In case the UE supports more than one of band combinations, and an operating band belongs to more than one band combinations then

a) When the operating band frequency range is ≤ 1 GHz, the applicable additional $\Delta T_{IB,c}$ shall be the average value for all band combinations defined in [clause 6.2C.2] in this specification, truncated to one decimal place that apply for that operating band among the supported band combinations. In case there is a harmonic relation between low band UL and high band DL, then the maximum $\Delta T_{IB,c}$ among the different supported band combinations involving such band shall be applied

b) When the operating band frequency range is > 1 GHz, the applicable additional $\Delta T_{IB,c}$ shall be the maximum value for all band combinations defined in [clause 6.2C.2] in this specification for the applicable operating bands.

6.2I.4 Configured transmitted power for RedCap

Editor's Note: The test case is not completed due to the following aspects are not yet determined:

- Generic procedure for RedCap UE in 38.508-1 is FFS

- Default message configuration for RedCap UE in 38.508-1 is FFS.

6.2I.4.1 Test purpose

The same test purpose as in 6.2.4.1.

6.2I.4.2 Test applicability

This test case applies to all types of NR RedCap UE release 17 and forward.

6.2I.4.3 Minimum conformance requirements

No exceptional requirements are specified for RedCap UE.

The normative reference for this requirement is TS 38.101-1 [2] clause 6.2.4.

6.2I.4.4 Test description

6.2I.4.4.1 Initial conditions

Same initial conditions as in 6.2.4 with following exception:

- The test channel bandwidth are specified in TS 38.508-1 [5] subclause 4.3.1 for RedCap.

6.2I.4.4.2 Test procedure

Same test procedure as clause 6.2.4.4.2.

6.2I.4.4.3 Message contents

FFS.

6.2I.4.5 Test requirement

The maximum output power measured shall not exceed the values specified in Table 6.2I.4.5-1.

Table 6.2I.4.5-0: Test Tolerance (Configured transmitted power)

	f ≤ 3.0GHz	3.0GHz < f ≤ 6.0GHz
BW ≤ 40MHz	0.7 dB	1.0 dB

Table 6.2I.4.5-1: P_{CMAX} configured UE output power

	Maximum output power	
	Test ID 1,2	Test ID 3
Measured UE output power test point 1	-10 dBm ± (7+TT)	-10 dBm +7+TT/-7.2-TT
Measured UE output power test point 2	10 dBm ± (6+TT)	10 dBm +6+TT/-6.2-TT
Measured UE output power test point 3	15 dBm ± (5+TT)	15 dBm +5+TT/-5.2-TT
Measured UE output power test point 4	Note 3	Note 4
Note 1: TT for each frequency and channel bandwidth is specified in Table 6.2I.4.5-0. Note 2: The maximum output power shall be within the range in Table 6.2I.4.5-2. Note 3: The maximum output power shall be within the range in Table 6.2I.4.5-3.		

6.3 Output power dynamics

6.3.1 Minimum output power

6.3.1.1 Test purpose

To verify the UE's ability to transmit with a broadband output power below the value specified in the test requirement when the power is set to a minimum value.

6.3.1.2 Test applicability

This test case applies to all types of NR UE release 15 and forward.

6.3.1.3 Minimum conformance requirements

The minimum controlled output power of the UE is defined as the power in the channel bandwidth for all transmit bandwidth configurations (resource blocks), when the power is set to a minimum value.

The minimum output power is defined as the mean power in at least one sub-frame 1 ms. The minimum output power shall not exceed the values specified in Table 6.3.1.3-1.

Table 6.3.1.3-1: Minimum output power

Channel bandwidth (MHz)	Minimum output power (dBm)	Measurement bandwidth (MHz)
5	-40	4.515
10	-40	9.375
15	-40	14.235
20	-40	19.095
25	-39	23.955
30	-38.2	28.815
40	-37	38.895
45	-36.5	43.575
50	-36	48.615
60	-35.2	58.35
70	-34.6	68.07
80	-34	78.15
90	-33.5	88.23
100	-33	98.31

The normative reference for this requirement is TS 38.101-1 [2] clause 6.3.1.

6.3.1.4 Test description

6.3.1.4.1 Initial condition

Initial conditions are a set of test configurations the UE needs to be tested in and the steps for the SS to take with the UE to reach the correct measurement state.

The initial test configurations consist of environmental conditions, test frequencies, test channel bandwidths and sub-carrier spacing based on NR operating bands specified in table 5.3.5-1. All of these configurations shall be tested with applicable test parameters for each combination of test channel bandwidth and sub-carrier spacing, and are shown in table 6.3.1.4.1-1. The details of the uplink reference measurement channels (RMCs) are specified in Annexes A.2. Configurations of PDSCH and PDCCH before measurement are specified in Annex C.2.

Table 6.3.1.4.1-1: Test Configuration Table

Initial Conditions			
Test Environment as specified in TS 38.508-1 [5] subclause 4.1		Normal, TL/VL, TL/VH, TH/VL, TH/VH	
Test Frequencies as specified in TS 38.508-1 [5] subclause 4.3.1		Low range, Mid range, High range (NOTE 2)	
Test Channel Bandwidths as specified in TS 38.508-1 [5] subclause 4.3.1		Lowest, Mid, Highest	
Test SCS as specified in Table 5.3.5-1		Highest	
Test Parameters for Channel Bandwidths			
Test ID	**Downlink Configuration**	**Uplink Configuration**	
	N/A for minimum output power	**Modulation**	**RB allocation (NOTE 1)**
1	test case	DFT-s-OFDM QPSK	Outer Full
NOTE 1: The specific configuration of each RB allocation is defined in Table 6.1-1. NOTE 2: For NR band n28, 30MHz test channel bandwidth is tested with Low range and High range test frequencies.			

1. Connect the SS to the UE antenna connectors as shown in TS 38.508-1 [5] Annex A, Figure A.3.1.1.1 for TE diagram and section A.3.2 for UE diagram.

2. The parameter settings for the cell are set up according to TS 38.508-1 [5] subclause 4.4.3.

3. Downlink signals are initially set up according to Annex C.0, C.1, C.2, and uplink signals according to Annex G.0, G.1, G.2, G.3.0.

4. The UL Reference Measurement Channel is set according to Table 6.3.1.4.1-1.

5. Propagation conditions are set according to Annex B.0.

6. Ensure the UE is in State RRC_CONNECTED with generic procedure parameters Connectivity *NR*, Connected without release *On*, Test Mode *On* and Test Loop Function *On* according to TS 38.508-1 [5] clause 4.5. Message contents are defined in clause 6.3.1.4.3.

6.3.1.4.2 Test procedure

1. SS sends uplink scheduling information for each UL HARQ process via PDCCH DCI format 0_1 for C_RNTI to schedule the UL RMC according to Table 6.3.1.4.1-1. Since the UE has no payload and no loopback data to send the UE sends uplink MAC padding bits on the UL RMC.

2. Send continuously uplink power control "down" commands in every uplink scheduling information to the UE; allow at least 200ms starting from the first TPC command in this step to ensure that the UE transmits at its minimum output power.

3. Measure the mean power of the UE in the associated measurement channel bandwidth specified in Table 6.3.1.5-1 for the specific channel bandwidth under test. The period of measurement shall be at least the continuous duration of one active sub-frame (1ms) and in the uplink symbols. For TDD symbols with transient periods are not under test.

6.3.1.4.3 Message contents

Message contents are according to TS 38.508-1 [5] subclause 4.6 with following exception.

Table 6.3.1.4.3-1: *PUSCH-Config*

Derivation Path: TS 38.508-1 [5], Table 4.6.3-118 with condition TRANSFORM_PRECODER_ENABLED

6.3.1.5 Test requirement

The minimum output power, derived in step 3 shall not exceed the values specified in Table 6.3.1.5-1.

Table 6.3.1.5-1: Minimum output power

Channel bandwidth (MHz)	Minimum output power (dBm)	Measurement bandwidth (MHz)
5	-40+TT	4.515
10	-40+TT	9.375
15	-40+TT	14.235
20	-40+TT	19.095
25	-39+TT	23.955
30	-38.2+TT	28.815
40	-37+TT	38.895
45	-36.5+TT	43.575
50	-36+TT	48.615
60	-35.2+TT	58.35
70	-34.6+TT	68.07
80	-34+TT	78.15
90	-33.5+TT	88.23
100	-33+TT	98.31
NOTE 1: TT for each frequency and channel bandwidth is specified in Table 6.3.1.5-2		

Table 6.3.1.5-2: Test Tolerance (Minimum output power)

	f ≤ 3.0GHz	3.0GHz < f ≤ 6.0GHz
BW ≤ 40MHz	1.0 dB	1.3 dB
40MHz < BW ≤ 100MHz	1.3 dB	1.3 dB

6.3.2 Transmit OFF power

6.3.2.1 Test purpose

To verify that the UE transmit OFF power is lower than the value specified in the test requirement.

An excess Transmit OFF power potentially increases the Rise Over Thermal (RoT) and therefore reduces the cell coverage area for other UEs.

6.3.2.2 Test applicability

The requirements of this test apply in test cases 6.3.3 Transmit ON/OFF time mask to all types of NR UE release 15 and forward.

6.3.2.3 Minimum conformance requirements

Transmit OFF power is defined as the mean power in the channel bandwidth when the transmitter is OFF. The transmitter is considered OFF when the UE is not allowed to transmit on any of its ports.

The Transmit OFF power is defined as the mean power in a duration of at least one sub-frame (1ms) excluding any transient periods. The Transmit OFF power shall not exceed the values specified in Table 6.3.2.3-1.

Table 6.3.2.3-1: Transmit OFF power

Channel bandwidth	(MHz)	5,10,15,20,25,30,35,40,45,50	60,70,80,90,100
REF_SCS	(kHz)	15	30
Transmit OFF power	(dBm)	-50	
Measurement bandwidth	(MHz)	MBW=REF_SCS*(12*N_{RB}+1)/1000	

The normative reference for this requirement is TS 38.101-1 [2] clause 6.3.2.

6.3.2.4 Test description

This test is covered by clause 6.3.3 Transmit ON/OFF time mask.

6.3.2.5 Test requirement

The requirement for the Transmit OFF power shall not exceed the values specified in Table 6.3.2.5-1.

Table 6.3.2.5-1: Transmit OFF power

Channel bandwidth (MHz)	Transmit OFF power (dBm)	Measurement bandwidth (MHz)
5	-50+TT	4.515
10	-50+TT	9.375
15	-50+TT	14.235
20	-50+TT	19.095
25	-50+TT	23.955
30	-50+TT	28.815
40	-50+TT	38.895
45	-50+TT	43.575
50	-50+TT	48.615
60	-50+TT	58.35
70	-50+TT	68.07
80	-50+TT	78.15
90	-50+TT	88.23
100	-50+TT	98.31
NOTE 1: TT for each frequency and channel bandwidth is specified in Table 6.3.2.5-2		

Table 6.3.2.5-2: Test Tolerance (Transmit OFF power)

	f ≤ 3.0GHz	3.0GHz < f ≤ 6.0GHz
BW ≤ 40MHz	1.5 dB	1.8 dB
40MHz < BW ≤ 100MHz	1.7 dB	1.8 dB

6.3.3 Transmit ON/OFF time mask

6.3.3.1 General

The transmit power time mask defines the transient period(s) allowed

- between transmit OFF power as defined in sub-clause 6.3.2 and transmit ON power symbols (transmit ON/OFF)

- between continuous ON-power transmissions with power change or RB hopping is applied.

When a UE signals the transient period capability, the transient period value (*tp)* can be 2, 4, or 7 μs. If no capability is signalled, the default transient period value of 10 μs applies.

In case of RB hopping, and in following figures where tp_{start} is specified, the transient period is shared symmetrically when the transient period is 10 μs. If the UE signals a transient period (*tp*) of 2, 4 or 7 μs, the transient period start position is given by tp_{start} in Table 6.3.3.1-1.

Table 6.3.3.1-1: tp_{start} values

tp (μs)	tp_{start} (μs)
2	-0.5
4	-1
7	-2.7
NOTE 1: Negative values mean that the transient period starts before the symbol boundary	

Unless otherwise stated the minimum requirements in clause 6.5 apply also in transient periods.

In the following sub-clauses, following definitions apply:

- A slot or long subslot transmission is a transmission with more than 2 symbols.

- A short subslot transmission is a transmission with 1 or 2 symbols.

6.3.3.2 General ON/OFF time mask

6.3.3.2.1 Test purpose

To verify that the general ON/OFF time mask meets the requirements given in 6.3.3.2.5.

The transmit power time mask for transmit ON/OFF defines the transient period(s) allowed between transmit OFF power as defined in sub-clause 6.3.2 and transmit ON power symbols (transmit ON/OFF)

Transmission of the wrong power increases interference to other channels, or increases transmission errors in the uplink channel.

6.3.3.2.2 Test applicability

This test case applies to all types of NR UE release 15 and forward.

6.3.3.2.3 Minimum conformance requirements

The general ON/OFF time mask defines the observation period between transmit OFF and ON power and between transmit ON and OFF power for each SCS. ON/OFF scenarios include: the beginning or end of DTX, measurement gap, contiguous, and non-contiguous transmission, etc.

The OFF power measurement period is defined in a duration of at least one slot excluding any transient periods. The ON power is defined as the mean power over one slot excluding any transient period.

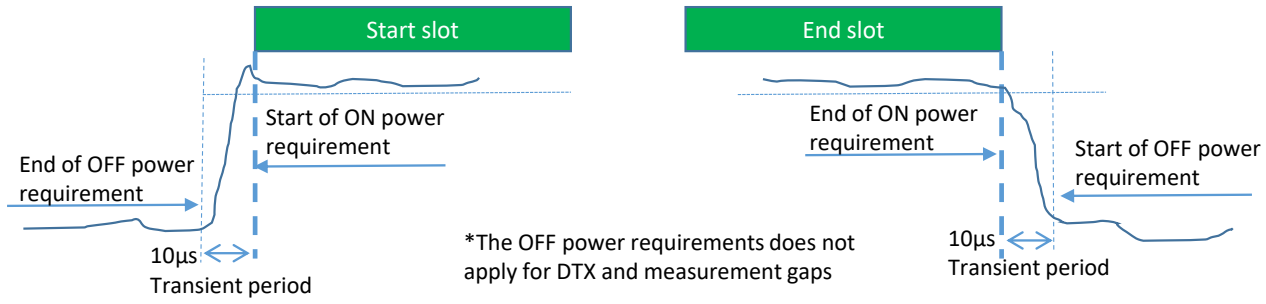

Figure 6.3.3.2.3-1: General ON/OFF time mask for NR UL transmission in FR1

The normative reference for this requirement is TS 38.101-1 [2] clause 6.3.3.2.

6.3.3.2.4 Test description

6.3.3.2.4.1 Initial condition

Initial conditions are a set of test configurations the UE needs to be tested in and the steps for the SS to take with the UE to reach the correct measurement state.

The initial test configurations consist of environmental conditions, test frequencies, test channel bandwidths and sub-carrier spacing based on NR operating bands specified in table 5.3.5-1. All of these configurations shall be tested with applicable test parameters for each combination of channel bandwidth and sub-carrier spacing, and are shown in table 6.3.3.2.4.1-1. The details of the uplink reference measurement channels (RMCs) are specified in Annexe A.2. Configurations of PDSCH and PDCCH before measurement are specified in Annex C.2.

Table 6.3.3.2.4.1-1: Test Configuration Table

Initial Conditions			
Test Environment as specified in TS 38.508-1 [5] subclause 4.1		Normal, TL/VL, TL/VH, TH/VL, TH/VH	
Test Frequencies as specified in TS 38.508-1 [5] subclause 4.3.1		Low range, Mid range, High range (NOTE 2)	
Test Channel Bandwidths as specified in TS 38.508-1 [5] subclause 4.3.1		Lowest, Mid, Highest	
Test SCS as specified in Table 5.3.5-1		Lowest, Highest	
Test Parameters for Channel Bandwidths			
Test ID	**Downlink Configuration**	**Uplink Configuration**	
	N/A for minimum output power	**Modulation**	**RB allocation (NOTE 1)**
1	test case	DFT-s-OFDM QPSK	Inner Full
NOTE 1: The specific configuration of each RB allocation is defined in Table 6.1-1. NOTE 2: For NR band n28, 30MHz test channel bandwidth is tested with Low range and High range test frequencies.			

1. Connect the SS to the UE antenna connectors as shown in TS 38.508-1 [5] Annex A, Figure A.3.1.1.1 for TE diagram and section A.3.2 for UE diagram.

2. The parameter settings for the cell are set up according to TS 38.508-1 [5] subclause 4.4.3.

3. Downlink signals are initially set up according to Annex C.0, C.1, C.2, and uplink signals according to Annex G.0, G.1, G.2, G.3.0.

4. The UL Reference Measurement Channel is set according to Table 6.3.3.2.4.1-1.

5. Propagation conditions are set according to Annex B.0.

6. Ensure the UE is in State RRC_CONNECTED with generic procedure parameters Connectivity *NR*, Connected without release *On*, Test Mode *On* and Test Loop Function *On* according to TS 38.508-1 [5] clause 4.5. Message contents are defined in clause 6.3.3.2.4.3.

6.3.3.2.4.2 Test procedure

1. SS sends uplink scheduling information via PDCCH DCI format 0_1 for C_RNTI to schedule the UL RMC according to Table 6.3.3.2.4.1-1. Since the UE has no payload and no loopback data to send the UE sends uplink MAC padding bits on the UL RMC. The UL assignment is such that the UE transmits on slots 8 for15kHz SCS, on slots 8 and 18 for 30kHz SCS and on slots 17 and 37 for 60kHz SCS.

2. Send continuously uplink power control "up" commands in every uplink scheduling information to the UE; allow at least 200ms starting from the first TPC command in this step for the UE to reach P_{UMAX} level.

3. ON power sub test:

3.1. Measure the output power of the UE PUSCH transmission during one slot.

4. OFF power sub test:

4.1. Measure the UE transmission OFF power during the slot prior to the PUSCH transmission, excluding a transient period of 10 µs in the end of the slot.

4.2. Measure the UE transmission OFF power during the slot following the PUSCH transmission, excluding a transient period of 10 µs at the beginning of the slot.

6.3.3.2.4.3 Message contents

Message contents are according to TS 38.508-1 [5] subclause 4.6 with following exceptions.

Table 6.3.3.2.4.3-1: Void

Table 6.3.3.2.4.3-2: *Void*

Table 6.3.3.2.4.3-3: TDD-UL-DL-Config

Derivation Path: TS 38.508-1[5], Table 4.6.3-192			
Information Element	**Value/remark**	**Comment**	**Condition**
TDD-UL-DL-ConfigCommon ::= SEQUENCE {			
referenceSubcarrierSpacing	SubcarrierSpacing		
pattern1 SEQUENCE {			
dl-UL-TransmissionPeriodicity	ms5		FR1
	ms10		FR1_15kHz
nrofDownlinkSlots	6		FR1_15kHz
	6		FR1_30kHz
	14		FR1_60kHz
nrofDownlinkSymbols	10		FR1_15kHz
	6		FR1_30kHz
	12		FR1_60kHz
nrofUplinkSlots	3		FR1_15kHz, FR1_30kHz
	4		FR1_60kHz
nrofUplinkSymbols	4		FR1_30kHz
	2		FR1_15kHz,
	8		FR1_60kHz
}			
pattern2	Not present		
}			

Table 6.3.3.2.4.3-4: PUSCH-TimeDomainResourceAllocationList

Derivation Path: TS 38.508-1[5], Table 4.6.3-122			
Information Element	**Value/remark**	**Comment**	**Condition**
PUSCH-TimeDomainResourceAllocationList ::= SEQUENCE (SIZE(1..maxNrofUL-Allocations)) OF {	2 entries		
PUSCH-TimeDomainResourceAllocation[1] SEQUENCE {			
k2	4		FR1_15kHz, FR1_30kHz
	6		FR1_60kHz
mappingType	typeA		
startSymbolAndLength	27	Start symbol(S)=0, Length(L)=14	
}			
PUSCH-TimeDomainResourceAllocation[2] SEQUENCE {		addressed by Msg3 PUSCH time resource allocation field of the Random Access Response acc. to TS 38.213 [22] Table 8.2-1.	
k2	2	K_2+ Δ=4 acc. to TS 38.214 [21] Table 6.1.2.1.1-5 (NOTE 1)	FR1_15kHz
	6	K_2+ Δ=9 acc. to TS 38.214 [21] Table 6.1.2.1.1-5 (NOTE 1)	FR1_30kHz

mappingType	typeA		
startSymbolAndLength	27	Start symbol(S)=0, Length(L)=14	
}			
}			
NOTE 1: Values are chosen so that first slot of a TDD-UL-DL slot configuration period can be used for the Random Access Response and the last slot (of the same or another period) for the corresponding Msg3.			

Condition	Explanation
FR1_15kHz	FR1 is used under the test. SCS is set to 15kHz.
FR1_30kHz	FR1 is used under the test. SCS is set to 30kHz.
FR1_60kHz	FR1 is used under the test. SCS is set to 60kHz.

Table 6.3.3.2.4.3-5: Void

Table 6.3.3.2.4.3-6: *PUSCH-Config*

Derivation Path: TS 38.508-1 [5], Table 4.6.3-118 with condition TRANSFORM_PRECODER_ENABLED

Table 6.3.3.2.4.3-7: *P-Max*

Derivation Path: TS 38.508-1 [5], Table 4.6.3-89			
Information Element	**Value/remark**	**Comment**	**Condition**
P-Max	23		

6.3.3.2.5 Test requirement

The requirement for the power measured in steps 2, 3 and 4 of the test procedure shall not exceed the values specified in Table 6.3.3.2.5-1.

Table 6.3.3.2.5-1: General ON/OFF time mask

	Channel bandwidth / minimum output power / measurement bandwidth													
	5 MHz	10 MHz	15 MHz	20 MHz	25 MHz	30 MHz	40 MHz	45 MHz	50 MHz	60 MHz	70 MHz	80 MHz	90 MHz	
Transmit OFF power	≤ -50+TT dBm													
Transmission OFF Measurement bandwidth	4.515	9.375	14.235	19.095	23.955	28.815	38.895	43.575	48.615	58.35	68.07	78.15	88.23	
Transmit ON power	Same as Table 6.2.1.5-1													
NOTE 1: TT for each frequency and channel bandwidth of OFF power is specified in Table 6.3.3.2.5-2 NOTE 2: TT for each frequency and channel bandwidth of ON power is specified in Table 6.2.1.5-3														

Table 6.3.3.2.5-2: Test Tolerance for OFF power

	f ≤ 3.0GHz	3.0GHz < f ≤ 6GHz
BW ≤ 40MHz	1.5 dB	1.8 dB
40MHz < BW ≤ 100MHz	1.7 dB	1.8 dB

Table 6.3.3.2.5-3: Void

6.3.3.3 Transmit power time mask for slot and short or subslot boundaries

No test case details are specified. Current test procedures for time masks are based on power measurement in relatively long period compared with transient period. For time masks between 2 active time slots with different power level, the test procedure can't provide enough resolution to identify non-conformant UEs. Therefore, the minimum requirement is not testable.

6.3.3.4 PRACH time mask

6.3.3.4.1 Test purpose

To verify that the PRACH time mask meets the requirements given in 6.3.3.4.5.

The time mask for PRACH time mask defines the transient period(s)allowed between transmit OFF power and transmit ON power when transmitting the PRACH.

Transmission of the wrong power increases interference to other channels, or increases transmission errors in the uplink channel.

6.3.3.4.2 Test applicability

This test case applies to all types of NR UE release 15 and forward.

6.3.3.4.3 Minimum conformance requirements

The PRACH ON power is specified as the mean power over the PRACH measurement period excluding any transient periods as shown in Figure 6.3.3.4.3-1. The measurement period for different PRACH preamble format is specified in Table 6.3.3.4.3-1.

Table 6.3.3.4.3-1: PRACH ON power measurement period

PRACH preamble format	SCS (kHz)	Measurement period (ms)
0	1.25	0.903125
1	1.25	2.284375
2	1.25	3.352604
3	5	0.903125
A1	15	0.142708
	30	0.071354
A2	15	0.285417
	30	0.142708
A3	15	0.428125
	30	0.2140625
B1	15	0.140365
	30	0.070182
B4	15	0.83046875
	30	0.415234375
A1/B1	15	0.142708 ms for first six occasion 0.140365 ms for the last occasion
	30	0.071354 ms for first six occasion 0.070182 ms for the last occasion
A2/B2	15	0.285417 ms for first two occasion 0.278385 ms for the third occasion
	30	0.142708 ms for first two occasion 0.1391925 ms for the third occasion
A3/B3	15	0.428125 ms for the first occasion 0.41640625 ms for the second occasion
	30	0.2140625 ms for the first occasion 0.208203125 ms for the second occasion
C0	15	0.10703125
	30	0.053515625
C2	15	0.333333
	30	0.166667
NOTE: For PRACH on PRACH occasion start from the beginning of 0.5ms or span the boundary of 0.5ms of the subframe, the measurement period will plus 0.032552μs		

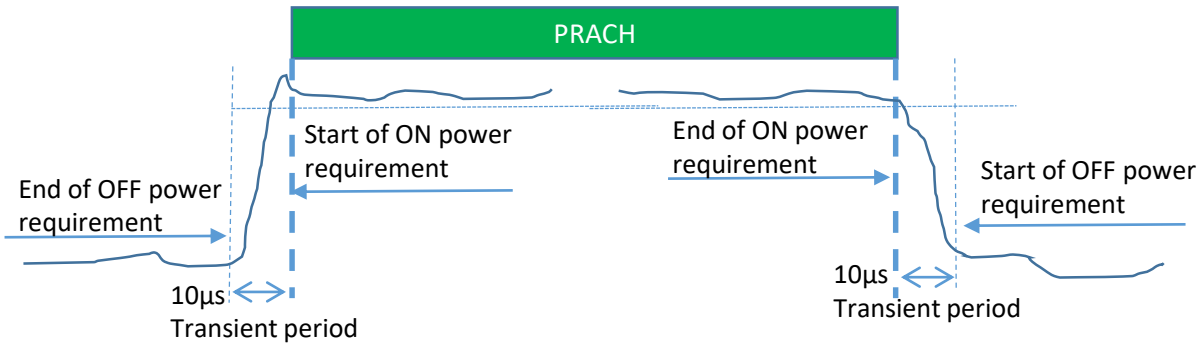

Figure 6.3.3.4.3-1: PRACH ON/OFF time mask

The normative reference for this requirement is TS 38.101-1 [2] clause 6.3.3.4.

6.3.3.4.4 Test description

6.3.3.4.4.1 Initial condition

Initial conditions are a set of test configurations the UE needs to be tested in and the steps for the SS to take with the UE to reach the correct measurement state.

The initial test configurations consist of environmental conditions, test frequencies, test channel bandwidths and sub-carrier spacing based on NR operating bands specified in table 5.2-1. All of these configurations shall be tested with applicable test parameters for each combination of test channel bandwidth and sub-carrier spacing, and are shown in table 6.3.3.4.4.1-1. The details of the uplink reference measurement channels (RMCs) are specified in Annexes [TBD]. Configurations of PDSCH and PDCCH before measurement are specified in Annex C.2.

Table 6.3.3.4.4.1-1: Test Configuration Table

Initial Conditions		
Test Environment as specified in TS 38.508-1 [5] subclause 4.1	Normal, TL/VL, TL/VH, TH/VL, TH/VH	
Test Frequencies as specified in TS 38.508-1 [5] subclause 4.3.1	Mid range (NOTE 1)	
Test Channel Bandwidths as specified in TS 38.508-1 [5] subclause 4.3.1	Lowest, Mid, Highest	
Test SCS as specified in Table 5.3.5-1	SCS defined in TS 38.211 [8] subclause 6.3.3.2 determined by PRACH Configuration Index for long sequence Lowest, Highest for short sequence	
PRACH preamble format		
	Paired Spectrum	Unpaired Spectrum
PRACH Configuration Index for test point 1	4 (long sequence)	12 (long sequence)
PRACH Configuration Index for test point 2	160 (short sequence)	123 (short sequence)
NOTE 1: For NR band n28, 30MHz test channel bandwidth is tested with Low range test frequencies.		

1. Connect the SS to the UE antenna connectors as shown in TS 38.508-1 [5] Annex A, Figure A.3.1.1.1 for TE diagram and section A.3.2 for UE diagram.

2. The parameter settings for the cell are set up according to TS 38.508-1 [5] subclause 4.4.3.

3. Downlink signals are initially set up according to Annex C.0, C.1, C.2, and uplink signals according to Annex G.0, G.1, G.2, G.3.0.

4. Propagation conditions are set according to Annex B.0.

5. Ensure the UE is in State RRC_CONNECTED with generic procedure parameters Connectivity *NR*, Connected without release *On*, Test Mode *On* and Test Loop Function *On* according to TS 38.508-1 [5] clause 4.5. Message contents are defined in clause 6.3.3.4.4.3.

6.3.3.4.4.2 Test procedure

1. The SS shall signal a Random Access Preamble ID via a PDCCH order to the UE and initiate a Non-contention based Random Access procedure.
2. The UE shall send the signalled preamble to the SS.
3. The SS measure the UE transmission OFF power during the slot preceding the PRACH preamble excluding a transient period of 10 µs according to Figure 6.3.3.4.3-1.
4. Measure the output power of the transmitted PRACH preamble according to Figure 6.3.3.4.3-1.
5. Measure the UE transmission OFF power, starting 10 µs after the PRACH preamble ends for a measurement period.

6.3.3.4.4.3 Message contents

Message contents are according to TS 38.508-1 [5] subclause 4.6.3 with the following exceptions:

Table 6.3.3.4.4.3-1: *RACH-ConfigCommon:* PRACH measurement

Derivation Path: TS 38.508-1[5], Table 4.6.3-128			
Information Element	**Value/remark**	**Comment**	**Condition**
RACH-ConfigCommon::= SEQUENCE {			
prach-RootSequenceIndex CHOICE {			
l139	Set according to table 4.4.2-2 for the NR Cell.		PRACH Format A3
l839	0	NR Cell 1	PRACH Format 0
	TBD	Other than NR Cell 1	PRACH Format 0
}			
}			

Table 6.3.3.4.4.3-2: *RACH-ConfigGeneric:* PRACH measurement

Derivation Path: TS 38.508-1[5], Table 4.6.3-130			
Information Element	**Value/remark**	**Comment**	**Condition**
RACH-ConfigGeneric ::= SEQUENCE {			
prach-ConfigurationIndex	4	Paired Spectrum	PRACH Format 0
	160	Paired Spectrum	PRACH Format A3
	12	Unpaired Spectrum	PRACH Format 0
	123	Unpaired Spectrum	PRACH Format A3
msg1-FDM	four		FR1
	one		FR1 5MHz PRACH Format A3 for SCS 15 kHz OR FR1 10MHz PRACH Format A3 for SCS 30 kHz OR FR1 10MHz PRACH Format A3 for SCS 60 kHz
preambleReceivedTargetPower	-118		PRACH Format 0
	-122		PRACH Format A3 for SCS 15 kHz
	-124		PRACH Format A3 for SCS 30 kHz
	-128		PRACH Format A3 for SCS 60kHz
powerRampingStep	dB0		
ra-ResponseWindow	sl20		
}			

Table 6.3.3.4.4.3-3: *ServingCellConfigCommonSIB: PRACH measurement*

Derivation Path: TS 38.508-1[5], Table 4.6.3-169			
Information Element	**Value/remark**	**Comment**	**Condition**
ServingCellConfigCommonSIB ::= SEQUENCE {			
ss-PBCH-BlockPower	32		SCS_15kHz
	35		SCS_30kHz
}			

Table 6.3.3.4.4.3-4: *PUSCH-TimeDomainResourceAllocationList: PRACH measurement*

Derivation Path: TS 38.508-1[5], Table 4.6.3-122			
Information Element	**Value/remark**	**Comment**	**Condition**
PUSCH-TimeDomainResourceAllocationList ::= SEQUENCE (SIZE(1..maxNrofUL-Allocations)) OF PUSCH-TimeDomainResourceAllocation {	2 entries		
PUSCH-TimeDomainResourceAllocation[2] SEQUENCE {		entry 2 addressed by Msg3 PUSCH time resource allocation field of the Random Access Response acc. to TS 38.213 [22] Table 8.2-1.	
k2	6	K2+ Δ=8 acc. to TS 38.214 [21] Table 6.1.2.1.1-5	Unpaired Spectrum for SCS15kHz and PRACH Format 0
}			
}			

6.3.3.4.5 Test requirement

The requirement for the power measured in steps (3), (4) and (5) of the test procedure shall not exceed the values specified in Table 6.3.3.4.5-1.

Table 6.3.3.4.5-1: PRACH time mask

	Channel bandwidth / minimum output power / measurement bandwidth											
	5 MHz	**10 MHz**	**15 MHz**	**20 MHz**	**25 MHz**	**30 MHz**	**40 MHz**	**50 MHz**	**60 MHz**	**70 MHz**	**80 MHz**	**M**
Transmit OFF power	≤ -50+TT dBm											
Transmission OFF Measurement bandwidth	4.515	9.375	14.235	19.095	23.955	28.815	38.895	48.615	58.35	68.07	78.15	88
Expected PRACH Transmission ON Measured Power for PRACH Format 0 and PRACH Format A3 for SCS 30kHz	-1 dBm	-1 dBm	-1 dBm	-1 dBm	-1 dBm	-1 dBm	-1 dBm	-1 dBm	-1 dBm	-1 dBm	-1 dBm	-1
Expected PRACH Transmission ON Measured Power for PRACH Format A3 for SCS 15kHz and SCS 60kHz	-2 dBm	-2 dBm	-2 dBm	-2 dBm	-2 dBm	-2 dBm	-2 dBm	-2 dBm	-2 dBm	-2 dBm	-2 dBm	-2
ON Power Tolerance	± (9+TT)dB											
NOTE 1: TT for each frequency and channel bandwidth is specified in Table 6.3.3.4.5-2												

Table 6.3.3.4.5-2: Test Tolerance (Transmit OFF power and PRACH time mask)

	f ≤ 3.0GHz	3.0GHz < f ≤ 6.0GHz
BW ≤ 40MHz	1.5 dB	1.8 dB
40MHz < BW ≤ 100MHz	1.7 dB	1.8 dB

6.3.3.5 Void

6.3.3.6 SRS time mask

6.3.3.6.1 Test purpose

To verify that the SRS time mask meets the requirements given in 6.3.3.6.5.

The time mask for SRS time mask defines the transient period(s) allowed between transmit OFF power and transmit ON power when transmitting the SRS.

Transmission of the wrong power increases interference to other channels, or increases transmission errors in the uplink channel.

6.3.3.6.2 Test applicability

This test case applies to all types of NR UE release 15 and forward.

6.3.3.6.3 Minimum conformance requirements

For SRS transmission mapped to one OFDM symbol, the ON power is defined as the mean power over the symbol duration excluding any transient period; See Figure 6.3.3.6.3-1

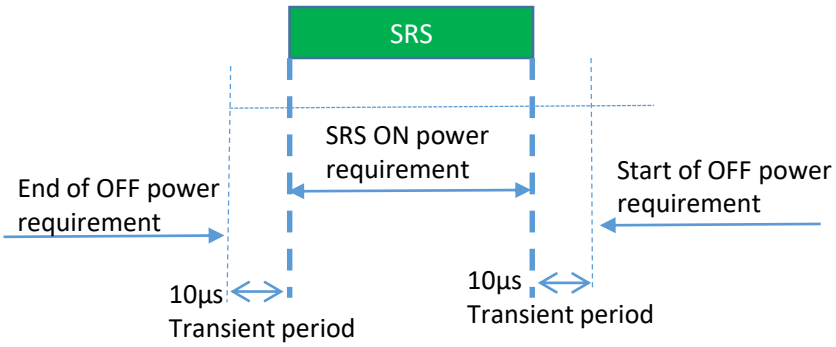

Figure 6.3.3.6.3-1: Single SRS time mask for NR UL transmission

For SRS transmission mapped to two or more OFDM symbols the ON power is defined as the mean power for each symbol duration excluding any transient period. For consecutive SRS transmissions without power change, Figure 6.3.3.6.3-2 applies.

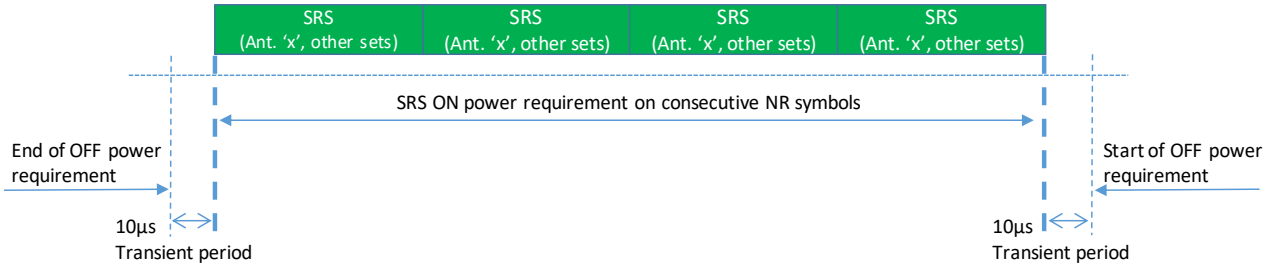

Figure 6.3.3.6.3-2: Consecutive SRS time mask for the case when no power change is required with SRS usage other than antenna switching

When power change between consecutive SRS transmissions is required, then Figure 6.3.3.6.3-3 and Figure 6.3.3.6.3-4 apply.

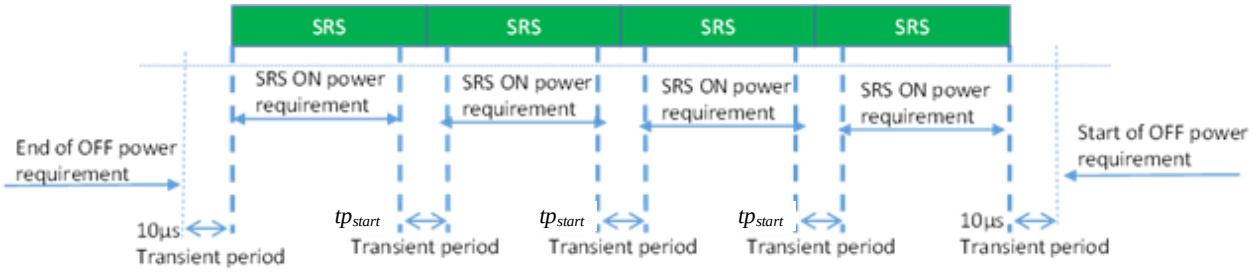

Figure 6.3.3.6.3-3: Consecutive SRS time mask for the case when power change is required and when 15kHz and 30kHz SCS is used in FR1 with SRS usage other than antenna switching

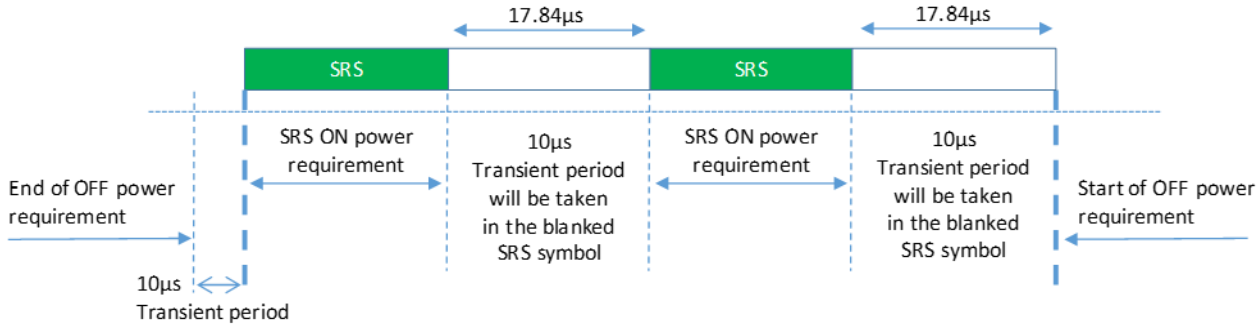

Figure 6.3.3.6.3-4: Consecutive SRS time mask for the case when power change is required and when 60kHz SCS is used in FR1

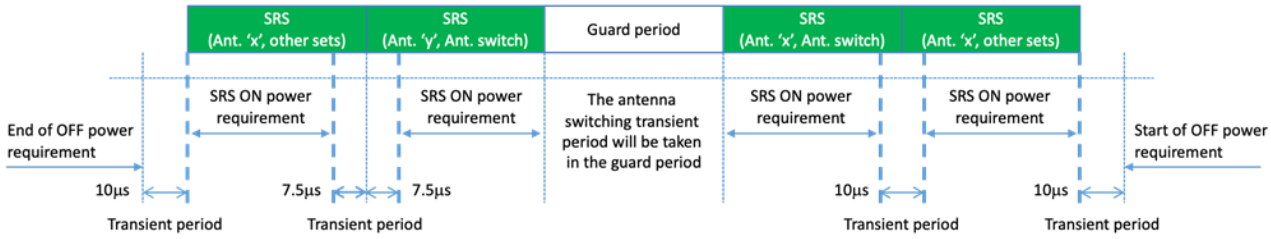

Figure 6.3.3.6.3-5: FR1 Time mask for 15 kHz and 30 kHz SCS for the case when consecutive SRS switching usage is between antenna switching & other sets

where "other sets" belongs to a "usage set" other than the set for antenna switching. The usage sets for SRS switching are defined in section 6.2.1 of TS 38.214 [12].

NOTE: Guard period of one symbol is defined between two SRS resources of an SRS resource set for antenna switching for 15kHz, 30kHz and 60kHz SCS in Table 6.2.1.2-1 of TS 38.214 [10].

The above transient period applies to all the transmit CCs in CA with the CC sounding SRS. UE RF requirements do not apply during this transient period.

The normative reference for this requirement is TS 38.101-1 [2] clause 6.3.3.6.

6.3.3.6.4 Test description

6.3.3.6.4.1 Initial condition

Initial conditions are a set of test configurations the UE needs to be tested in and the steps for the SS to take with the UE to reach the correct measurement state.

The initial test configurations consist of environmental conditions, test frequencies, test channel bandwidths and sub-carrier spacing based on NR operating bands specified in table 5.3.5-1. All of these configurations shall be tested with applicable test parameters for each combination of channel bandwidth and sub-carrier spacing, and are shown in table 6.3.3.6.4.1-1. The details of the uplink reference measurement channels (RMCs) are specified in Annexe A.2. Configurations of PDSCH and PDCCH before measurement are specified in Annex C.2.

Table 6.3.3.6.4.1-1: Test Configuration Table

Initial Conditions		
Test Environment as specified in TS 38.508-1 [5] subclause 4.1	Normal, TL/VL, TL/VH, TH/VL, TH/VH	
Test Frequencies as specified in TS 38.508-1 [5] subclause 4.3.1	Mid range (NOTE 1)	
Test Channel Bandwidths as specified in TS 38.508-1 [5] subclause 4.3.1	Lowest, Mid, Highest	
Test SCS as specified in Table 5.3.5-1	Lowest, Highest	
SRS configuration	Paired Spectrum	Unpaired Spectrum
c-SRS (SRS bandwidth configuration)	7 (24 RB for BW 5 MHz) 14 (52 RB for BW 10 MHz) 20 (76 RB for BW 15 MHz) 25 (104 RB for BW 20 MHz) 33 (132 RB for BW 25 MHz) 42 (160 RB for BW 30 MHz) 51 (216 RB for BW 40MHz) 58 (242 RB for BW 45MHz) 60 (264 RB for BW 50MHz) for SCS 15 KHz	7 (for BW 5 MHz) 13 (for BW 10 MHz) 19 (for BW 15 MHz) 25 (for BW 20 MHz) 30 (for BW 25 MHz) 40 (for BW 30 MHz) 51 (for BW 40MHz) 60 (for BW 50MHz) for SCS 15 KHz
	1 (8 RB for BW 5 MHz) 7 (24 RB for BW 10 MHz) 10 (36 RB for BW 15 MHz) 13 (48 RB for BW 20 MHz) 17 (64 RB for BW 25 MHz) 20 (76 RB for BW 30 MHz) 25 (104 RB for BW 40MHz) 30 (117 RB for BW 45MHz) 33 (132 RB for BW 50MHz) 42 (160 RB for BW 60MHz) 45 (184 RB for BW 70MHz) 51 (216 RB for BW 80MHz) 56 (240 RB for BW 90MHz) 63 (272 RB for BW 100MHz) for SCS 30 KHz	1 (for BW 5 MHz) 6 (for BW 10 MHz) 10 (for BW 15 MHz) 12 (for BW 20 MHz) 17 (for BW 25 MHz) 20 (for BW 30 MHz) 25 (for BW 40MHz) 30 (for BW 50MHz) 40 (for BW 60MHz) 45 (for BW 70MHz) 51 (for BW 80MHz) 53 (for BW 90MHz) 61 (for BW 100MHz) for SCS 30 KHz
	1 (8 RB for BW 10 MHz) 4 (16 RB for BW 15 MHz) 7 (24 RB for BW 20 MHz) 8 (28 RB for BW 25 MHz) 10 (36 RBfor BW 30 MHz) 13 (48 RB for BW 40MHz) 15 (56 RB for BW 45MHz) 17 (64 RB for BW 50MHz) 20 (76 RB for BW 60MHz) 22 (88 RB for BW 70MHz) 25 (104 RB for BW 80MHz) 29 (120 RB for BW 90MHz) 33 (132 RB for BW 100MHz) for SCS 60 KHz	1 (for BW 10 MHz) 4 (for BW 15 MHz) 7 (for BW 20, 25 MHz) 9 (for BW 30 MHz) 13 (for BW 40MHz) 17 (for BW 50MHz) 19 (for BW 60MHz) 22 (for BW 70MHz) 25 (for BW 80MHz) 27 (for BW 90MHz) 30 (for BW 100MHz) for SCS 60 KHz
b-SRS	0	0
b-hop	3	0
freqDomainPosition	0	0
SRS-PeriodicityAndOffset	sl10 for SCS 15 KHz	sl10 for SCS 15 KHz
	sl20 for SCS 30 KHz	sl20 for SCS 30 KHz
	sl40 for SCS 60 KHz	sl40 for SCS 60 KHz
transmissionComb	n2	n2
CombOffset	0	0
cyclicShift	0	0
startPosition	0	0

nrofSymbols	n1	n1
NOTE 1: For NR band n28, 30MHz test channel bandwidth is tested with Low range test frequencies.		

1. Connect the SS to the UE antenna connectors as shown in TS 38.508-1 [5] Annex A, Figure A.3.1.1.1 for TE diagram and section A.3.2 for UE diagram.

2. The parameter settings for the cell are set up according to TS 38.508-1 [5] subclause 4.4.3.

3. Downlink signals are initially set up according to Annex C.0, C.1, C.2, and uplink signals according to Annex G.0, G.1, G.2, G.3.0.

4. Propagation conditions are set according to Annex B.0.

5. Ensure the UE is in State RRC_CONNECTED with generic procedure parameters Connectivity *NR*, Connected without release *On*, Test Mode *On* and Test Loop Function *On* according to TS 38.508-1 [5] clause 4.5. Message contents are defined in clause 6.3.3.6.4.3.

6.3.3.6.4.2 Test procedure

1. SS sends uplink scheduling information via PDCCH DCI format 0_1 for C_RNTI to schedule the UL RMC according to Table 6.3.3.2.4.1-1. Since the UE has no payload and no loopback data to send the UE sends uplink MAC padding bits on the UL RMC. The UL assignment is such that the UE transmits on slot 4 for15kHz SCS, on slot 8 for 30kHz SCS and on slot 16 for 60kHz SCS. PUSCH is transmitted in the first half of the frame.

2. Send continuously uplink power control "up" commands in every uplink scheduling information to the UE; allow at least 200ms starting from the first TPC command in this step for the UE to reach P_{UMAX} level.

3. ON power sub test:

3.1. Measure the output power of the transmitted SRS transmission during 1 OFDM symbol. The SRS transmission in the second half of the frame is used for measurement since there is no PUSCH transmission before and after.

4. OFF power sub test:

4.1. The SS measure the UE transmission OFF power during the 13 OFDM symbols, preceding the SRS symbol excluding a transient period of 10 μs.

4.2. Measure the UE transmission OFF power during the slot following the SRS under test, excluding a transient period of 10 μs

6.3.3.6.4.3 Message contents

Message contents are according to TS 38.508-1 [5] subclause 4.6.3 with the following exceptions:

Table 6.3.3.6.4.3-0: BWP-UplinkDedicated

Derivation Path: TS 38.508-1[5], Table 4.6.3-15			
Information Element	**Value/remark**	**Comment**	**Condition**
BWP-UplinkDedicated ::= SEQUENCE {			
srs-Config	*SRS-Config* in Table 6.3.3.6.4.3-1		
}			
Note: This message exception is only valid for the initial BWP and not for an additional BWP inside BWP-Uplink.			

Table 6.3.3.6.4.3-1: SRS-Config: SRS time mask measurement

Derivation Path: TS 38.508-1[5], Table 4.6.3-182			
Information Element	**Value/remark**	**Comment**	**Condition**
SRS-Config ::= SEQUENCE {			
srs-ResourceSetToAddModList SEQUENCE (SIZE(0..maxNrofSRS-ResourceSets)) OF SEQUENCE {	1 entry		
resourceType CHOICE {			
periodic SEQUENCE {			
}			
}			
alpha	alpha08		
p0	0		
}			
srs-ResourceToAddModList SEQUENCE (SIZE(1..maxNrofSRS-Resources)) OF SEQUENCE {	1 entry		
resourceMapping SEQUENCE {			
startPosition	0		
nrofSymbols	n1		
repetitionFactor	n1		
}			
freqHopping SEQUENCE {			
c-SRS			
	7 (for BW 5 MHz) 14 (for BW 10 MHz) 20 (for BW 15 MHz) 25 (for BW 20 MHz) 33 (for BW 25 MHz) 42 (for BW 30 MHz) 51 (for BW 40MHz) 58 (for BW 45MHz) 60 (for BW 50MHz)		Paired Spectrum for SCS 15 KHz
	1 (for BW 5 MHz) 7 (for BW 10 MHz) 10 (for BW 15 MHz) 13 (for BW 20 MHz) 17 (for BW 25 MHz) 20 (for BW 30 MHz) 25 (for BW 40MHz) 30 (for BW 45MHz) 33 (for BW 50MHz) 42 (for BW 60MHz) 45 (for BW 70MHz) 51 (for BW 80MHz) 56 (for BW 90MHz)		Paired Spectrum for SCS 30 KHz
	1 (for BW 10 MHz) 4 (for BW 15 MHz) 7 (for BW 20 MHz) 8 (for BW 25 MHz) 10 (for BW 30 MHz) 13 (for BW 40MHz) 15 (for BW 45MHz) 17 (for BW 50MHz) 20 (for BW 60MHz) 22 (for BW 70MHz) 25 (for BW 80MHz) 29 (for BW 90MHz) 33 (for BW 100MHz)		Paired Spectrum for SCS 60 KHz
	7 (for BW 5 MHz) 13 (for BW 10 MHz) 19 (for BW 15 MHz) 25 (for BW 20 MHz) 30 (for BW 25 MHz) 40 (for BW 30 MHz) 51 (for BW 40MHz) 60 (for BW 50MHz)		Unpaired Spectrum for SCS 15 KHz

	1 (for BW 5 MHz) 6 (for BW 10 MHz) 10 (for BW 15 MHz) 12 (for BW 20 MHz) 17 (for BW 25 MHz) 20 (for BW 30 MHz) 25 (for BW 40MHz) 30 (for BW 50MHz) 40 (for BW 60MHz) 45 (for BW 70MHz) 51 (for BW 80MHz) 53 (for BW 90MHz) 61 (for BW 100MHz)		Unpaired Spectrum for SCS 30 KHz
	1 (for BW 10 MHz) 4 (for BW 15 MHz) 7 (for BW 20, 25 MHz) 9 (for BW 30 MHz) 13 (for BW 40MHz) 17 (for BW 50MHz) 19 (for BW 60MHz) 22 (for BW 70MHz) 25 (for BW 80MHz) 27 (for BW 90MHz) 30 (for BW 100MHz)		Unpaired Spectrum for SCS 60 KHz
b-SRS	0		
b-hop	3		Paired Spectrum
	0		Unpaired Spectrum
}			
resourceType CHOICE {			
periodic SEQUENCE {			
periodicityAndOffset-p CHOICE{			
sl10	9		SCS 15 KHz
sl20	18		SCS 30KHz
sl40	36		SCS 60 KHz
}			
}			
}			
}			
}			

Table 6.3.3.6.4.3-2: ServingCellConfigCommon

Derivation Path: 38.508-1[5], Table 4.6.3-168			
Information Element	**Value/remark**	**Comment**	**Condition**
ServingCellConfigCommon ::= SEQUENCE {			
ss-PBCH-BlockPower	18		SCS_15kHz
	21		SCS_30kHz
}			

Condition	Explanation
SCS_15kHz	SCS=15kHz for SS/PBCH block
SCS_30kHz	SCS=30kHz for SS/PBCH block

6.3.3.6.5 Test requirement

The requirement for the power measured in steps (1), (2) and (3) of the test procedure shall not exceed the values specified in Table 6.3.3.6.5-1.

Table 6.3.3.6.5-1: SRS time mask

	Channel bandwidth / minimum output power / measurement bandwidth											
	5 MHz	10 MHz	15 MHz	20 MHz	25 MHz	30 MHz	40 MHz	45 MHz	50 MHz	60 MHz	70 MHz	80 MHz
Transmit OFF power	≤ -50+TT dBm											
Transmission OFF Measurement bandwidth	4.515	9.375	14.235	19.095	23.955	28.815	38.895	43.575	48.615	58.35	68.07	78.15
Transmit ON power	Same as Table 6.2.1.5-1											
NOTE 1: TT for each frequency and channel bandwidth is specified in Table 6.3.3.6.5-2												

Table 6.3.3.6.5-2: Test Tolerance (Transmit OFF power and SRS time mask)

	f ≤ 3.0GHz	3.0GHz < f ≤ 6GHz
BW ≤ 40MHz	1.5 dB	1.8 dB
40MHz < BW ≤ 100MHz	1.7 dB	1.8 dB

6.3.3.7 PUSCH-PUCCH and PUSCH-SRS time masks

No test case details are specified. Current test procedures for time masks are based on power measurement in relatively long period compared with transient period. For time masks between 2 active time slots with different power level, the test procedure can't provide enough resolution to identify non-conformant UEs. Therefore the minimum requirement is not testable.

6.3.3.8 Transmit power time mask for consecutive slot or long subslot transmission and short subslot transmission boundaries

No test case details are specified. Current test procedures for time masks are based on power measurement in relatively long period compared with transient period. For time masks between 2 active time slots with different power level, the test procedure can't provide enough resolution to identify non-conformant UEs. Therefore the minimum requirement is not testable.

6.3.3.9 Transmit power time mask for consecutive short subslot transmissions boundaries

No test case details are specified. Current test procedures for time masks are based on power measurement in relatively long period compared with transient period. For time masks between 2 active time slots with different power level, the test procedure can't provide enough resolution to identify non-conformant UEs. Therefore the minimum requirement is not testable.